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Site Assessment Report Addendum III for Underground Storage Tank Site 22 (IR Site 21)

Naval Air Station Pensacola Pensacola, Florida

Contract Task Order 0056

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SITE ASSESSMENT REPORT ADDENDUM III FOR UNDERGROUND STORAGE TANK SITE 22 (INSTALLATION RESTORATION SITE 21)

NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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PROFESSIONAL CERTIFICATION

Site Assessment Report Addendum III UST Site 22, IR Site 21 Naval Air Station Pensacola, Pensacola, Florida

This Site Assessment Report Addendum III was prepared under the direct supervision of the undersigned geologist using geologic and hydrogeologic principles standard to the profession at the time the report was prepared. If conditions are determined to exist that differ from those described, the undersigned geologist should be notified to evaluate the effects of additional information on the assessment described in this report. This report was developed specifically for the referenced site and should not be construed to apply to any other site.

Gerald Walker,	P.G.
Florida License No. PG	1180
	Date

TABLE OF CONTENTS

SEC ₁	<u>ION</u>		PAGE
	ERTIFIC ONYMS	ATION	
EXEC	CUTIVE S	SUMMARY	ES- 1
1.0	SITE I	DESCRIPTION AND BACKGROUND INFORMATION	1-1
	1.1	SITE LOCATION AND CONDITIONS	1-1
	1.2	SITE HISTORY	1-2
2.0	PREV	IOUS INVESTIGATIONS	2-1
3.0	SITE	ASSESSMENT METHODOLOGY	3-1
0.0	3.1	SOIL SAMPLING PLAN	
	3.2	DPT GROUNDWATER SAMPLING PLAN	
	3.3	MICRO WELL AND MONITORING WELL INSTALLATION PLAN	3-4
	3.4	GROUNDWATER SAMPLING	3-4
	3.5	SAMPLE HANDLING	
	3.6	QUALITY CONTROL SAMPLES	
	3.7	EQUIPMENT CALIBRATION	
	3.8	SOIL ASSESSMENT	
	3.8.1	Soil Lithologic Descriptions	
	3.8.2	New Monitoring Well Locations	
	3.8.3	Monitoring Well Installation	
	3.8.4	Monitoring Well Development	3-8
	3.8.5	Monitoring Well SamplingAQUIFER CHARACTERIZATION	3-5
	3.9 3.9.1	Static Water Level Measurements	
4.0		ASSESSMENT RESULTS	
	4.1	SOIL ASSESSMENT RESULTS	
	4.2 4.3	SOIL SAMPLING RESULTSSITE HYDROGEOLOGY	
	4.3 4.3.1	Static Water Level and Groundwater Elevations	
	4.3.1	GROUNDWATER ASSESSMENT RESULTS	
	4.4 4.4.1	2007 Existing Monitoring Well Groundwater Re-sampling Results	
	4.4.2	2007 New Monitoring Well Groundwater Sampling Results	
	4.4.3	2007 DPT Groundwater Sample Results	4-3
	4.4.4	2009 Monitoring Well Groundwater Sample Results	
	4.4.5	Lead in Groundwater	
5.0	CONC	CLUSIONS AND RECOMMENDATIONS	
5.0	5.1	SARA I CONCLUSIONS AND RECOMMENDATIONS	
	5.2	SARA II CONCLUSIONS AND RECOMMENDATIONS	
	5.3	SARA III CONCLUSIONS AND RECOMMENDATIONS	
	0.0	O, W V (III OO NO 20010 NO 7 WID THE COUNTY LINE / CTO 100 MINE /	
REFE	RENCE	S	R-1
APPE	NDICES		
	Α	2009 FIELD DATA SHEETS	
	В	2007 AND 2009 VALIDATED LABORATORY DATA	
	Ċ	LEAD POPULATION ASSESSMENT	

NUMBE	<u>ER</u>	PAGE
2-1	Summary of 1997 CAR Groundwater Analytical Results	2-5
2-2	Summary of 2001 SARA I Groundwater Analytical Results	2-11
2-3	Summary of 2001 SARA I Soil Analytical Results	2-16
2-4	Summary of 2003 SARA II Groundwater Analytical Results	2-20
3-1	2007 SARA III DPT Soil Analytical Summary	3-3
3-2	2007 SARA III DPT Groundwater Analytical Summary	3-4
3-3	2007 SARA III Groundwater Sample Analytical Summary	3-5
3-4	2009 SARA III Groundwater Sample Analytical Summary	3-5
4-1	Summary of 2007 SARA III Groundwater Analytical Results	4-10
4-2	Summary of 2009 SARA III Groundwater Analytical Results	4-20
4-3	Summary of Historical Lead Analytical Results	4-21

FIGURES

<u>NUMB</u>	<u>ER</u>	<u>PAGE</u>
1-1	Facility Location Map	1-3
1-2	Site Location Map	1-4
1-3	Current Site Conditions	1-5
2-1	1996-1997 CAR Groundwater Monitoring Well Locations and Regulatory Exceedances	2-4
2-2	2001 SARA I Groundwater and Soil Sampling Locations and Regulatory Exceedances	2-10
2-3	2003 SARA II Groundwater Sampling Locations and Regulatory Exceedances	2-19
3-1	Areas to be Investigated During SARA III	3-10
4-1	Groundwater Isocontour Map, January 6, 2009	4-5
4-2	Groundwater Isocontour Map, May 8, 2007	4-6
4-3	Groundwater Isocontour Map, June 22, 2000	
4-4	2007 SARA III Groundwater Sample Locations and Regulatory Exceedances	4-8
4-5	2007 SARA III DPT Groundwater Sample Locations and Regulatory Exceedances	4-9
4-6	2009 SARA III Supplemental Groundwater Sample Locations and Regulatory Exceedance	es4-19
5-1	Sampling Locations	5-5
5-2	Approximate Delineation of Plumes According to Sampling Events	5-6

ACRONYMS

ATSDR Agency for Toxic Substances and Disease Registry

AST Aboveground Storage Tank

AVGAS Aviation Gasoline
bls Below Land Surface

BTEX Benzene, toluene ethylbenzene and xylene

CAR Contamination Assessment Report

CLEAN Comprehensive Long-Term Environmental Action Navy

DEP-SOP-001/01 FDEP Field Activities SOPs
DPT Direct-Push Technology
F.A.C. Florida Administrative Code

FDEP Florida Department of Environmental Protection

FID Flame Ionization Detector

FL-PRO Florida Petroleum Range Organics

FS Field Sampling

GCTLs Groundwater Cleanup Target Levels

ID Inside Diameter

IR Installation Restoration
mg/kg milligrams per kilogram
MTBE Methyl Tertiary-Butyl Ether

NAS Naval Air Station

NADC Natural Attenuation Default Concentration
NAVD North American Vertical Datum 1988

NEESA Naval Energy and Environmental Support Activity

NELAC National Environmental Laboratory Accreditation Certification

NTU Nephelometric Turbidity Unit

OVA Organic Vapor Analyzer

PAH Polycyclic Aromatic Hydrocarbon

PVC Polyvinyl Chloride
PWC Public Works Center
RAP Remedial Action Plan

RBCA Risk Based Corrective Action

RSS Rescue Swim School

SARA Site Assessment Report Addendum

ACRONYMS (CONTINUED)

SCTL Soil Cleanup Target Level

SIM selected ion monitor

SOP Standard Operating Procedure

SPLP Soil Precipitation Leaching Procedure

SW Solid Waste

SWL Static Water Level
TCL Target Compound List

TRPH Total Recoverable Petroleum Hydrocarbon

TtNUS Tetra Tech NUS, Inc. µg/L micrograms per liter

UST Underground Storage Tank
VOC Volatile Organic Compounds

EXECUTIVE SUMMARY

Tetra Tech NUS, Inc. (TtNUS) has completed the Site Assessment Report Addendum III (SARA III) for Underground Storage Tank (UST) Site 22 [Installation Restoration (IR) Site 21] located at Naval Air Station (NAS) Pensacola, in Escambia County, Florida. This document was conducted in general accordance with the requirements of Chapter 62-770, Florida Administrative Code (F.A.C).

The main purpose of this SARA III is to further evaluate the extent of groundwater and soil contamination resulting from a former aviation gasoline (AVGAS) tank farm. Previously, various assessments have been conducted for the site. This addendum continues and supplements the conclusions and recommendation of the previous investigations.

Site Assessment

The following activities were conducted during the 2007 field event portion of this SARA III:

- Thirty-one (31) soil borings were advanced to a depth of up to 8.5 feet below land surface (bls) and sent to the on-site laboratory for analysis of BTEX, MTBE, and TRPH. The sampling locations were determined based on field screening methods and the progression of the samples was based on data received from the on-site mobile laboratory.
- Five soil samples were sent to the off-site laboratory for analysis of PAHs, VOCs, total lead, and TRPH.
- Groundwater samples were collected from 23 existing permanent monitoring wells. Three additional
 wells were installed to replace wells that could not be located due to Hurricane Ivan reconstruction
 activities. These monitoring well samples were sent to an off-site laboratory for analysis of select
 parameters including target compound list (TCL) VOCs, PAHs, TRPH, and total lead.
- Sixteen new shallow water table micro wells were installed based on the results of DPT investigations. Groundwater samples were collected from the newly installed monitoring wells and analyzed at an off-site laboratory for VOCs, PAHs, TRPH, and lead.
- Forty-two direct-push technology (DPT) groundwater samples were analyzed by a mobile laboratory for benzene, toluene, ethylbenzene, and xylene (BTEX), naphthalene, and methyl tertiary-butyl ether (MTBE). Nineteen of those DPT groundwater samples were sent to an off-site laboratory for confirmation analysis. <u>Eleven</u> samples were analyzed for total lead, polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs) and total recoverable petroleum hydrocarbons (TRPH). <u>Three</u> of the DPT samples were analyzed for total lead, PAHs, VOCs, and TRPH.

- Analytical results were compared to the Florida Department of Environmental Protection (FDEP) Soil
 Cleanup Target Levels (SCTLs), Groundwater Cleanup Target Levels (GCTLs), and Natural
 Attenuation Default Concentrations (NADCs) in Chapter 62-777, F.A.C.
- Groundwater levels were recorded and a groundwater isocontour map was produced.
- Evaluation of aquifer properties was conducted to interpret the movement of groundwater at the site.

The following activities were conducted in January 2009 as part of the SARA III:

- Seventeen (17) permanent monitoring wells were sampled and analyzed for lead, manganese, and zinc.
- One monitoring well was sampled and analyzed for VOCs, lead, manganese, and zinc.
- Groundwater levels were recorded and a groundwater isocontour map was produced.

Conclusions

Based on the data reported from the SARA I investigation:

- No free-phase petroleum hydrocarbons were detected in any of the monitoring wells.
- Fifteen (15) hand auger soil borings were completed to the water table to assess the extent of soil
 contamination. Confirmation soil samples collected from three soil borings contained TRPH
 concentrations exceeding FDEP SCTL for direct exposure residential area [460 milligrams per
 kilogram (mg/kg)] and leachability to groundwater (340 mg/kg).
- Benzo(a)pyrene was detected in one subsurface soil sample at a concentration of 0.309 mg/kg, which exceeds the SCTL for direct exposure (residential area), but was below the SCTL for leachability to groundwater. Direct exposure is not a significant concern because of the sample collection depth (3.5 feet bls). All other detected PAHs were below the applicable SCTLs.
- Copper and lead were detected in a single on-site soil sample at concentrations exceeding the
 applicable FDEP SCTLs. The concentrations of copper and lead in the sample exceeded the direct
 exposure (residential area) SCTLs. These samples were collected from 5 feet bls; therefore, direct
 exposure is not a significant concern.
- Total xylenes was the only VOC detected in groundwater samples at a concentration exceeding the FDEP GCTL. The compound was detected in a single monitoring well (MW05) at a concentration (23 μg/L) exceeding the FDEPs GCTL of 20 μg/L.
- TRPH was detected in groundwater samples from two monitoring wells (MW05 at 6,800 μg/L and MW19 at 7,120 μg/L) at concentrations exceeding the FDEP GCTL of 5,000 μg/L.

- Lead was detected at concentrations exceeding the FDEP GCTL (15 μg/L) in samples collected from nine monitoring wells MW04 (18.2 μg/L), MW05 (24.4 μg/L), MW10 (51.2 μg/L), MW11 (152 μg/L), MW12 (31.8 μg/L), MW13 (25.6 μg/L), MW15 (17.8 μg/L), MW19 (18.4 μg/L), and MW23 (88.4 μg/L).
- The absence of detected analytes in the groundwater sample from deep monitoring well DMW29 and the limited detection of an analyte in deep monitoring well DMW30 define the vertical extent of the groundwater contamination at the site.
- The average groundwater horizontal hydraulic gradient of the site is 0.0021 feet per foot. The average groundwater vertical gradient was upward at 0.0015 feet per foot and the estimated average hydraulic conductivity at the site is 5.2587 X 10⁻⁵ feet per second.
- The theoretical groundwater seepage (linear) velocity is calculated to be approximately 2,321 feet per year. When natural retarding processes are taken into considered using a retardation factor in the velocity equation, the estimated groundwater seepage velocity is approximately 13 feet per year.

The purpose of the SARA II was to address the comments from the FDEP to the SARA I. The conclusions of the report were as follows:

- Field headspace screening results indicate that petroleum impact to soil has occurred at the western end of the site, south of Radford Boulevard. Because headspace screening detections are limited to samples collected from intervals immediately above the water table, the soil contamination in this area most likely resulted from groundwater level fluctuations over time producing a smear zone of soil exposed to contaminated groundwater.
- Fixed-base laboratory analyses indicated that TRPH concentrations were above the residential and leachability SCTLs. Because soil samples collected were from the intervals immediately above the water table, the TRPH concentrations most likely represent groundwater impact to the smear zone or capillary fringe, and may not be due to contamination of vadose zone soil. Three soil samples from this area were submitted for soil precipitation leaching procedure (SPLP) extraction and TRPH analysis. TRPH was below the laboratory detection limits in the three samples extracted and analyzed. Groundwater samples collected from the monitoring wells installed in this area had TRPH concentrations below the GCTL for TRPH.
- Two surface soil samples collected south of Building 670 had PAH detections at concentrations exceeding SCTLs. The surface soil sample from SB29 had five PAH compounds exceeding the SCTLs. Soil boring SB29 was the western-most boring advanced in this area during the SAR addendum investigation. Lead and copper concentrations in the soil samples collected during this investigation were below the SCTLs.

• The extent of the dissolved lead groundwater plume reported from previous investigations at the eastern end of the site appears to be delineated. Previous work at the site and results from the most recent investigation indicate that this plume originates north of Radford Boulevard and extends south to the former location of Building 645. The lead GCTL exceedance detected in MW43 appears to be separate from the original lead plume and may originate from a different release.

Following the conclusions and recommendations from SARA II, a Triad approach was used to better define the contamination in soil and groundwater at the site. Extensive soil and groundwater sampling has been conducted throughout the history of investigation at Site 22, as seen on Figure 5-1. A schematic illustrating the areas that have reported high detections of contaminants throughout the history of the investigation at Site 22 is shown on Figure 5-2.

Recommendations

In accordance with the conclusions in the SARA I, SARA II and with the results of the investigations from SARA III, TtNUS recommends that a RAP be completed to address the TRPH contaminated soils and groundwater at UST Site 22. In addition to the proposed RAP, confirmatory groundwater sampling should be completed to verify the reported high concentrations of ethylbenzene and inconsistencies between lead concentrations in groundwater, and confirmatory soil sampling should be conducted around DP26S due to high detections of PAHs prior to remedial plan design.

Inorganic petroleum constituents comprise two separate plumes of groundwater exceeding the GCTL across the southern portion of the site. The plumes appear to originate from two former AST locations. The delineated plumes cover approximately two acres in total area. Monitoring only is recommended for these locations since exposure is unlikely and due to the delicate nature of the restored landscape in those areas.

Results of the supplemental sampling event conclude that the lead in groundwater is not naturally occurring. Furthermore, there is not a continuing source, as evidenced by the fact that there is not a defined pattern to the lead exceedances at the site. Exceedances of the GCTLs for lead and manganese were encountered during the study. Also, there was an exceedance of the NADC criteria for lead at monitoring well MW11, a monitoring well located at the edge or immediately downgradient of a former AST. TtNUS recommends groundwater monitoring only. However, due to the erratic nature of the lead exceedances, the number of monitoring locations should be increased to include all on-site monitoring wells for at least one event. This has not previously occurred and would give an overall representation of lead concentrations in groundwater across the site. Further monitoring could be adjusted based on results of this event. In addition, an upgradient monitoring well should be designated as a site—specific background location for comparison of future groundwater sampling events.

1.0 SITE DESCRIPTION AND BACKGROUND INFORMATION

This Site Assessment Report Addendum (SARA) III has been prepared by Tetra Tech NUS, Inc. (TtNUS) under the Comprehensive Long-term Environmental Action Navy (CLEAN) IV Contract Number N62467-04-D-0055 Contract Task Order 0056 for the additional assessment of Underground Storage Tank (UST) Site 22 [Installation Restoration (IR) Site 21], located at Naval Air Station (NAS) Pensacola, Florida.

1.1 SITE LOCATION AND CONDITIONS

NAS Pensacola (Figure 1-1) is located in Escambia County, in Florida's northwest coastal area, approximately five miles west of the Pensacola City limits. The approximately 5,000-acre installation was constructed in the 1800's. Prior to construction, the facility was undeveloped and sparsely vegetated.

Current land use at NAS Pensacola consists of areas used for flight operations at Forrest Sherman Field, various military housing, training, support activities, and historical facilities open to the public including Gulf Islands National Seashore and the National Museum of Naval Aviation.

The site under investigation, UST Site 22 (Figure 1-2) is located in the southeastern portion of the facility, immediately north of and adjacent to the NAS Pensacola waterfront on Pensacola Bay. The site is mostly unpaved and it is bordered to the north by the newly constructed Rescue Swim School (RSS) and Gymnasium. To the west, east and south, the site is bordered by paved areas consisting of Duncan Road, a parking lot, and Pensacola Bay, respectively. The total area covered by the site is approximately 23 Acres.

Site 22 and the surrounding area have undergone extensive construction/demolition activities since the Fall of 2004. Site conditions as of January 2009 are presented on Figure 1-3. The spike in activity was brought on by the landfall of Hurricane Ivan and a pre-existing need for updates to the general facility. Projects that are ongoing or that have recently been completed at Site 22 include:

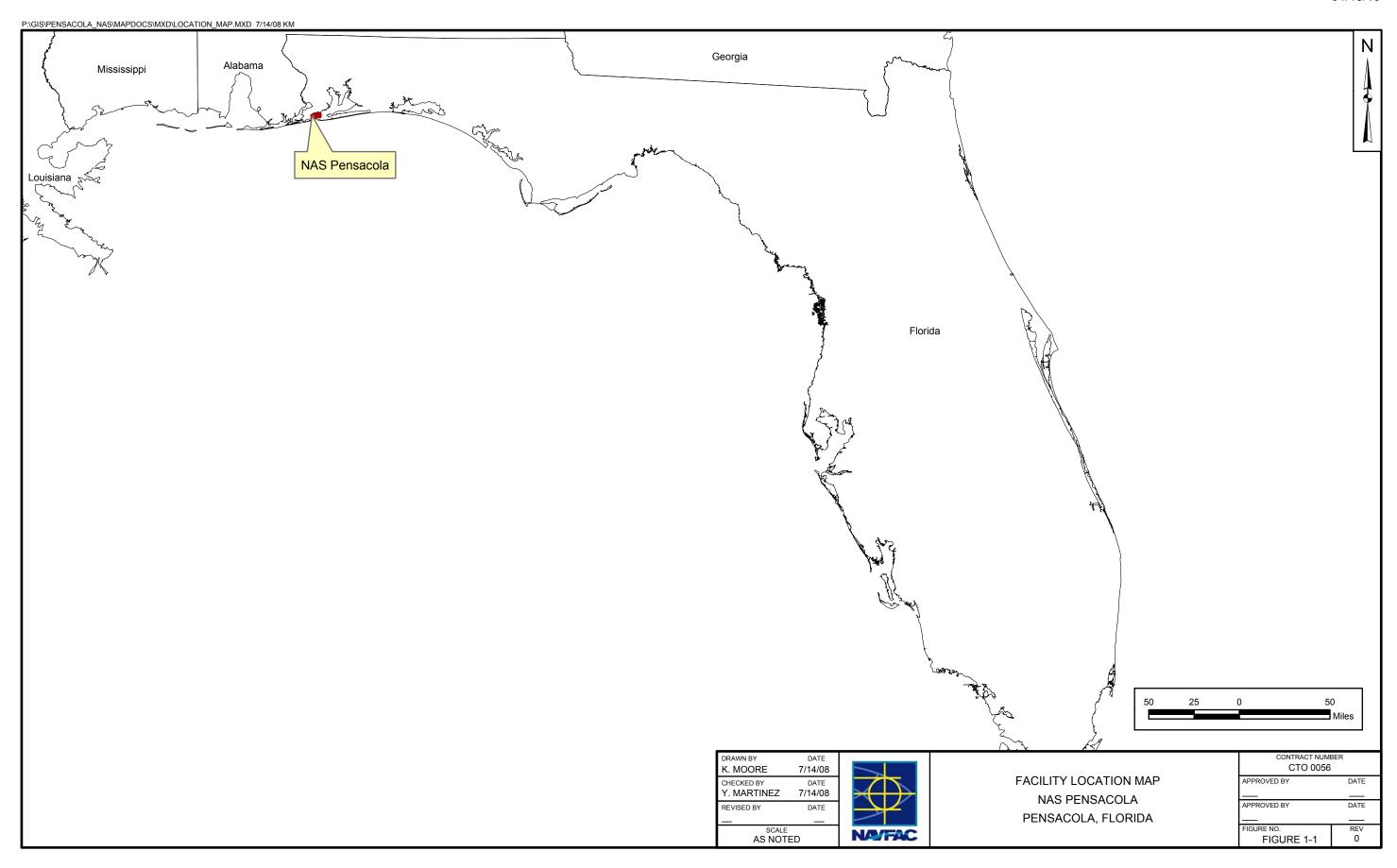
- Beach/Seawall restoration program that involved the removal of several buildings, the old obstacle course and a tennis court along the heavily damaged seawall area of the site. The area was subsequently graded with beach sand and planted with native vegetation.
- Construction of the new RSS and gymnasium.
- Construction of a new parking lot and sidewalks.
- Demolition of the barracks adjacent to the northern section of the site.
- · Re-paving of Radford Boulevard.

As expected, several monitoring wells in the study area have been either destroyed or covered. Three wells, MW31, MW54, and MW46, have been replaced.

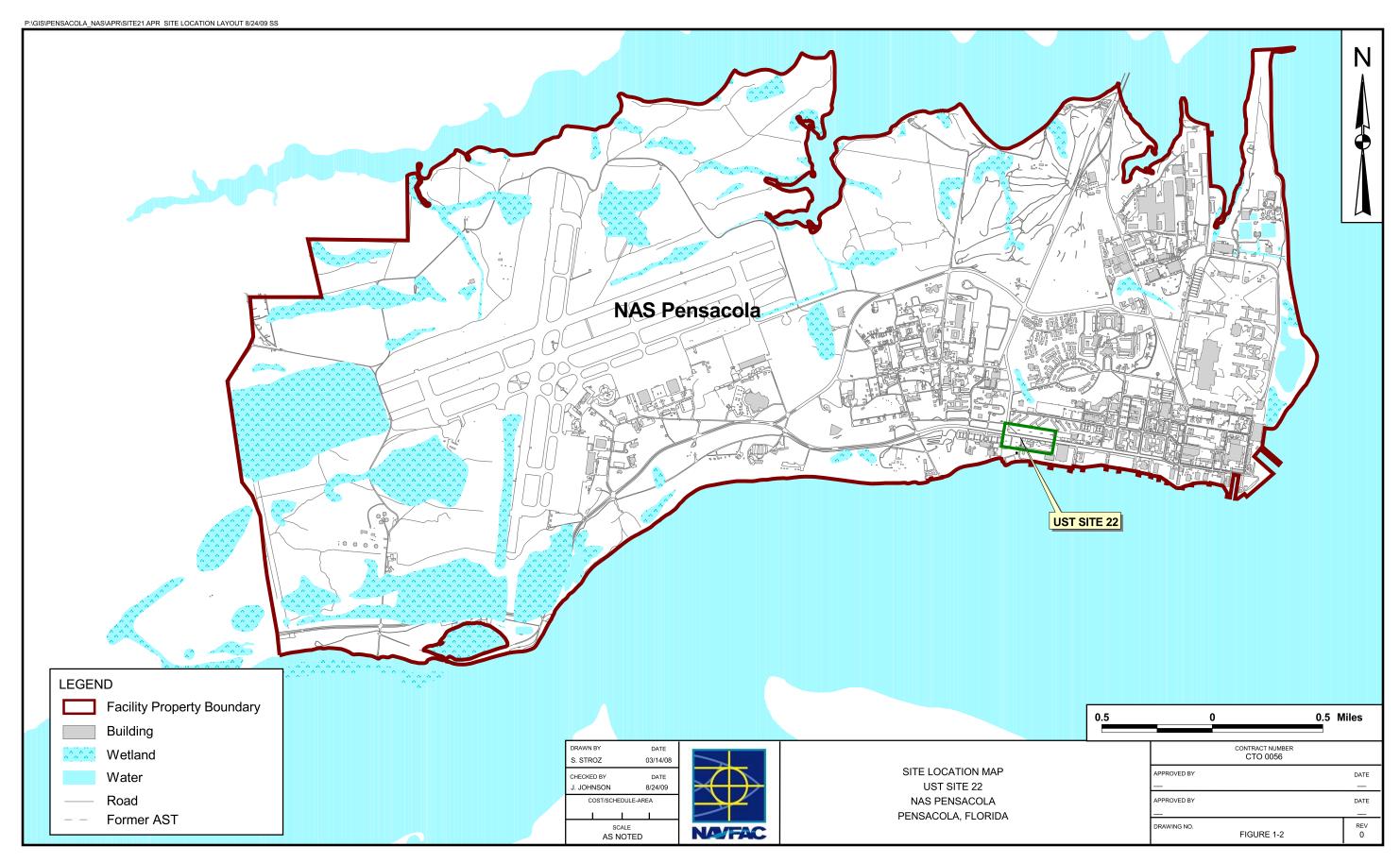
1.2 SITE HISTORY

Naval operations began on Pensacola Bay in 1825, and expanded between 1828 and 1835. However, after several natural disasters in the early 1900s, the Navy Yard was forced into maintenance status for a three-year period. In 1914, the first U.S. Naval Air Station was established and became the primary training base for naval aviators. NAS Pensacola is known as the "Cradle of Naval Aviation" because it is where every Naval Aviator, Naval Flight Officer, and enlisted air crewman begins flight training. It is also the Navy's premier location for enlisted aviation technical training [Agency for Toxic Substances and Disease Registry (ATSDR), 2006].

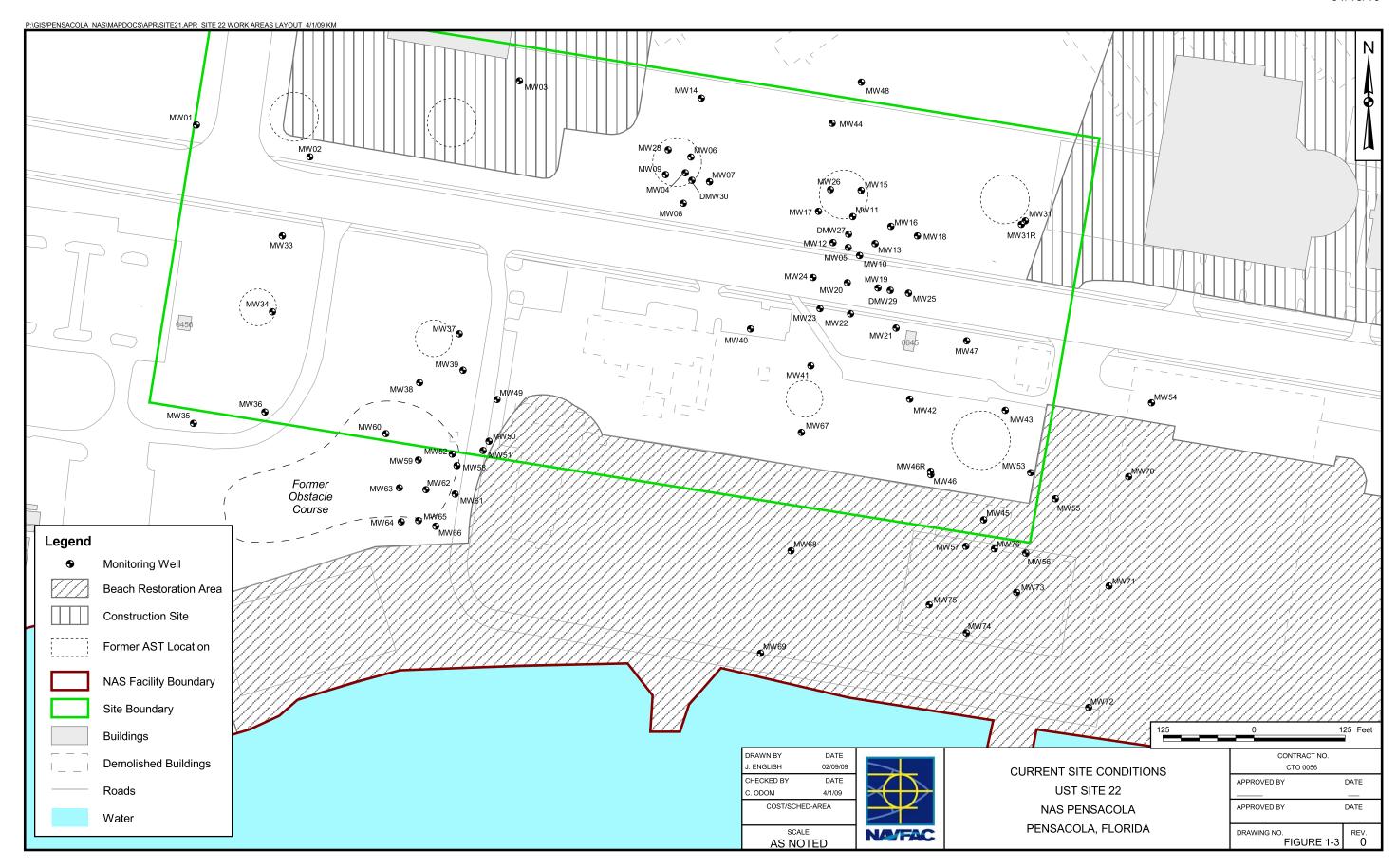
Site 22 is the former location of an Aviation Gasoline (AVGAS) tank farm. From approximately 1940 to the late 1960's, nine above ground storage tanks (ASTs) were used to store aviation gasoline at the site. The tanks were annually cleaned and the sludge from the bottoms of the tanks was disposed on the ground surface in the immediate vicinity of the tanks from 1951 to 1967 (NEESA 1983). The ASTs were removed from the site at an unknown date. It is unknown if any soils were excavated and disposed of during the tank removal. The majority of the site is currently covered with grass. Building 670, a former fuel system pump house, was located at the eastern edge of the site, south of Radford Boulevard. Two underground storage tanks (USTs) for contaminated fuel were reportedly associated with Building 670.



TtNUS/TAL-09-078-1522-5.1 1-3 CTO 0056



TtNUS/TAL-09-078-1522-5.1 1-4 CTO 0056



TtNUS/TAL-09-078-1522-5.1 1-5 CTO 0056

2.0 PREVIOUS INVESTIGATIONS

Previous investigations at the site include the Phase I IR assessment conducted in 1991, a Contamination Assessment Report (CAR) in 1997, and two assessment addendums, SARA I and SARA II, were completed in 2001 and 2003, respectively.

The sampling activities for Phase I IR included 18 soil borings, five temporary wells and a soil headspace survey [Public Works Center (PWC), 1997]. Concentrations of chromium, zinc, lead, copper, total xylenes, phenol, and total recoverable petroleum hydrocarbons (TRPH) were detected in the groundwater. However, only zinc, lead, and TRPH reported concentrations that exceeded the 1991 Florida Primary Drinking Water Standards [Florida Department of Environmental Protection (FDEP)]. In addition, TRPH was detected in 7 of the 18 borings, and one sample reported elevated polycyclic aromatic hydrocarbons (PAHs). Also, a thin layer of free product or petroleum sheen was detected, but it should be noted that this sheen has not been observed in any of the later investigations.

In June 1997, the NAS Pensacola Navy PWC submitted the CAR based on additional investigations to address the findings of the previous report. This investigation included 113 soil borings analyzed via organic vapor analyzer (OVA) and 25 shallow monitoring wells. Concentrations of TRPH, volatile organic compounds (VOCs), PAHs, and lead were detected above FDEP regulatory limits in groundwater samples taken during the assessment (Table 2-1). Based on the results, the recommendations given in the report were to propose the site as No Further Action and Monitoring Only Plan for PAHs, total lead, and TRPH. The locations of sample exceedances to regulatory standards from the CAR are shown on Figure 2-1.

Upon review of the CAR prepared by the Navy, the FDEP issued a technical review letter on August 25, 1997, which requested additional site assessment in order to meet the requirements of Chapter 62-770, Florida Administrative Code (F.A.C.). The SARA I investigation was conducted from May to July 2000. Areas investigated under this effort were identified prior to the field work. The investigation targeted areas where petroleum constituent concentrations in soil or groundwater exceeded regulatory criteria.

The investigation included 16 confirmation soil samples for laboratory analysis based on flame ionization detector (FID) headspace screening results, field observations, and/or proximity to the seasonal high groundwater level. Twenty-three (23) groundwater samples were collected from existing monitoring wells at the site to be analyzed for VOCs; including methyl tertiary-butyl ether (MTBE), PAHs, TRPHs, and total lead. Naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, TRPH, lead, and xylenes were detected

above Groundwater Cleanup Target Levels (GCTLs) in groundwater samples (Table 2-2). Naphthalene, TRPH, copper, lead, and zinc were detected above regulatory standards in the soil samples as indentified in Table 2-3. The locations of the soil and groundwater sample exceedances to the Soil Cleanup Target Levels (SCTLs) and GCTLs are shown on Figure 2-2. Based on the additional assessment data, the SARA I report recommended additional soil delineation and groundwater monitoring at the site.

On April 20, 2001, FDEP issued a technical review letter agreeing with the SARA I recommendations and requested that additional assessment be conducted at the site before preparation of the Remedial Action Plan (RAP).

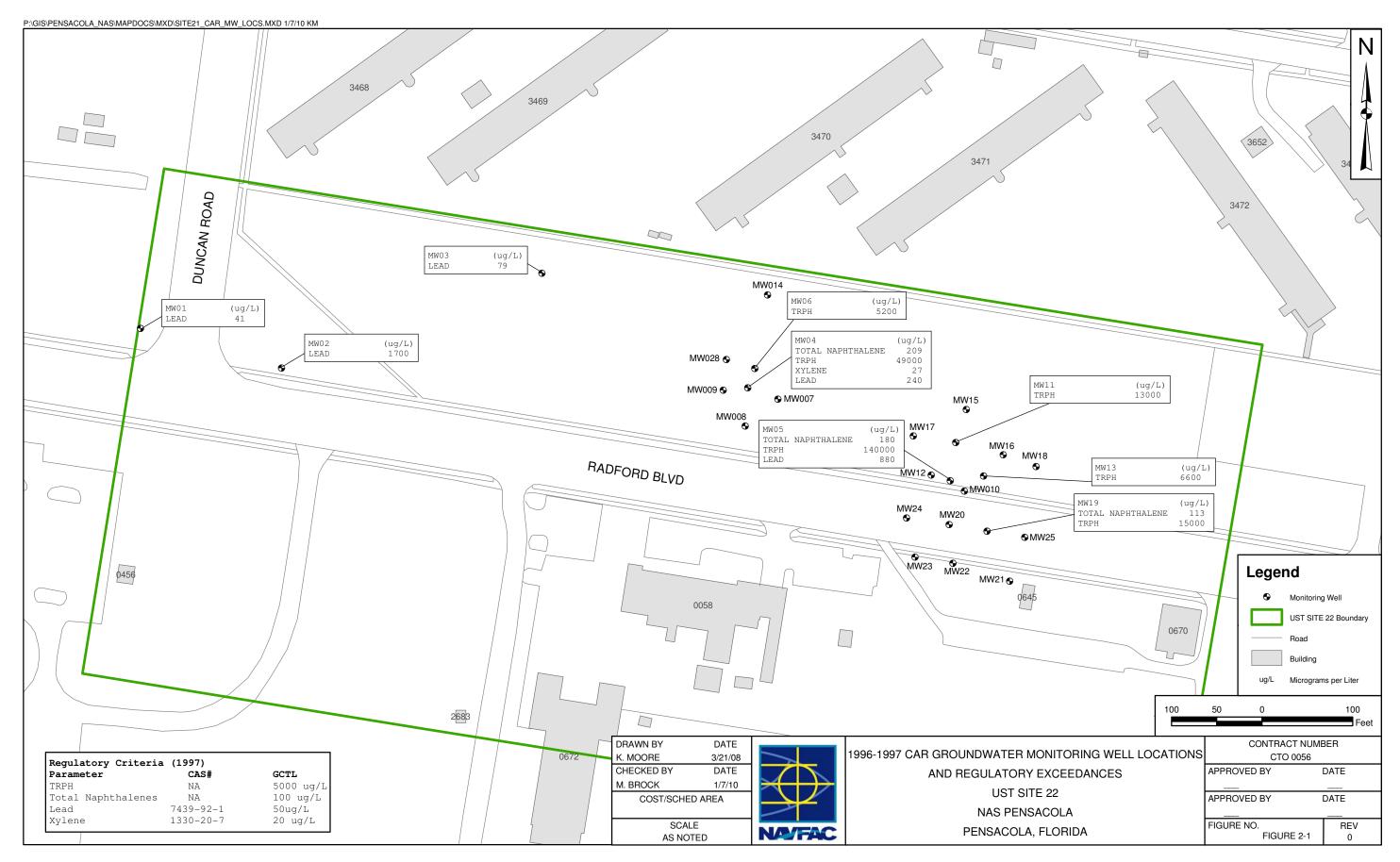
In April 2003, TtNUS submitted a SARA II letter report to document field activities completed between October 2002 and February 2003. The field activities included advancement of 33 soil borings for soil head space screening and soil sample collection, and installation of 12 monitoring wells for groundwater sampling. Benzo(a)pyrene, benzo(a)anthracene, benzo(a)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3)pyrene, copper, lead, and zinc were detected above SCTLs in the soil samples collected as part of the study. TRPH and lead were detected above the GCTLs in the groundwater samples collected during the assessment activities. A summary of the results of the 2003 groundwater sampling activities is presented in Table 2-4. The groundwater sample exceedances to GCTL regulatory standards are shown on Figure 2-3.

Based on the SARA II (TtNUS, 2003), the report recommended that additional site assessment be conducted and specifically recommended further delineation of TRPH and PAHs in soil and lead in groundwater. The SARA II also recommended that once the contaminants were delineated, a RAP should be prepared to address dissolved lead contamination in groundwater. The source of the lead contamination in groundwater at the site appears to be associated with former ASTs north of Radford Boulevard at the eastern perimeter of the site. Although the ASTs were removed from the site, it is unknown if any soils were excavated and disposed of during the tank removal. In addition it was reported that the tanks were used to store AVGAS and were annually cleaned and the sludge from the bottoms of the tanks was disposed on the ground surface in the immediate vicinity of the tanks. Lead is a well known indicator parameter of AVGAS.

In May 2007, TtNUS personnel conducted two phases of field activities as part of the SARA III. The first phase of the field event was conducted using a drill crew and direct-push technology (DPT) rig. Both soil samples and groundwater were collected. Samples were analyzed on site using a mobile laboratory. The second phase included installation and sampling of 16 permanent monitoring wells. Locations were determined using mobile laboratory data. After installation, all wells were developed and sampled using low flow purge and sample techniques.

The soil samples collected detected total xylene and lead at concentrations above their respective SCTL in the study area. TRPH, ethylbenzene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, 1-methylnaphthalene and 2-methylnaphthalene, naphthalene, benzo(a)anthracene, and lead were detected in groundwater samples at concentrations exceeding their respective GCTLs.

It should be noted that throughout the history of this site investigation, three sets of FDEP criteria were used. Revisions were made to the criteria on May 26, 1999 and April 17, 2005. The resulting target levels were only slightly different from those in the previous edition of the rules. The data collected during each segment of the study were compared to the most current criteria available at the time.



TtNUS/TAL-09-078-1522-5.1 2-4 CTO 0056

TABLE 2-1 SUMMARY OF 1997 CAR GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 1 OF 5

Sample No.				NASP21MW03GW	NASP21MW04GW	NASP21MW05GW
Sample Location	GCIL	MW01	MW02	MW03	MW04	MW05
Collect Date		2/9/1996	2/9/1996	2/9/1996	2/9/1996	2/9/1996
Analyte (CAS #)						
Volatile Organic Compounds (2) (L	ig/L)					
Benzene (71-43-2)	1	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane (75-27-4)	0.6	NS	NS	NS	NS	NS
Ethylbenzene (100-41-4)	30	1 U	1 U	1 U	2	1
Toluene (108-88-3)	40	1 U	1 U	1 U	1 U	1
Trichlorofluoromethane (75-69-4)	2100	NS	NS	NS	NS	NS
Xylenes (1330-20-7)	20	2 U	2 U	2 U	27	17
Polycyclic Aromatic Hydrocarbor	 ns ⁽³⁾ (ug/L)					
Fluorene (86-73-7)	280	4 U	4 U	4 U	4 U	4 U
1-Methylnaphthalene (90-12-0)	20	5 U	5 U	5 U	57	52
2-Methylnaphthalene (91-57-6)	20	7 U	7 U	7 U	100	80
Naphthalene (91-20-3)	20	7 U	7 U	7 U	52	48
Total Recoverable Petroleum Hyd	 drocarbons ⁽⁴⁾ (μg/L)					
	5,000	1,000 U	1,000 U	1,000 U	49,000	140,000
Metals ⁽⁵⁾ (ug/L <u>)</u>						
Lead (7439-92-1)	15	41	1700	79	240	880

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

² SW-846 8260B, ³ SW-846 8310, ⁴ FL-PRO, ⁵ SW-846 6010B U = Analyte not detected above laboratory method detection limit **Bold** indicates exceedance of regulatory limits. NS = Location not sampled for this parameter μg/L = micrograms per liter

TABLE 2-1 SUMMARY OF 1997 CAR GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 2 OF 5

Sample No. Sample Location Collect Date	GCTL ⁽¹⁾	NASP21MW06GW MW06 7/31/1996	NASP21MW07GW MW07 7/31/1996	NASP21MW08GW MW08 7/31/1996	NASP21MW09GW MW09 7/31/1996	NASP21MW10GW MW10 7/31/1996
Analyte (CAS #)						
Volatile Organic Compounds ⁽²⁾ (ւ	<u>ıg/L)</u>					
Benzene (71-43-2)	1	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane (75-27-4)	0.6	1 U	1 U	1 U	1 U	2
Ethylbenzene (100-41-4)	30	1 U	1 U	1 U	1 U	1 U
Toluene (108-88-3)	40	1 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane (75-69-4)	2100	1 U	1 U	1 U	1 U	1 U
Xylenes (1330-20-7)	20	1 U	1 U	1 U	1 U	1 U
Polycyclic Aromatic Hydrocarbor	ns ⁽³⁾ (ug/L)					
Fluorene (86-73-7)	280	4 U	4 U	4 U	4 U	4 U
1-Methylnaphthalene (90-12-0)	20	5 U	5 U	5 U	5 U	17
2-Methylnaphthalene (91-57-6)	20	7 U	7 U	7 U	7 U	18
Naphthalene (91-20-3)	20	7 U	7 U	7 U	7 U	12
 Total Recoverable Petroleum Hyd	drocarbons ⁽⁴⁾ (µg/L)					
	5,000	5,200	250 U	250 U	1,400	2,400
<u>Metals ⁽⁵⁾ (ug/L)</u> Lead (7439-92-1)	15	NS	NS	NS	NS	NS

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

² SW-846 8260B, ³ SW-846 8310, ⁴ FL-PRO, ⁵ SW-846 6010B U = Analyte not detected above laboratory method detection limit **Bold** indicates exceedance of regulatory limits. NS = Location not sampled for this parameter μg/L = micrograms per liter

TABLE 2-1 SUMMARY OF 1997 CAR GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 3 OF 5

Sample No. Sample Location Collect Date	GCTL ⁽¹⁾	NASP21MW11GW MW11 7/31/1996	NASP21MW12GW MW12 7/31/1996	NASP21MW13GW MW13 7/31/1996	NASP21MW14GW MW14 9/25/1996	NASP21MW15GW MW15 9/25/1996
Analyte (CAS #)						
Volatile Organic Compounds (2) (ug	<u>a/L)</u>					
Benzene (71-43-2)	1	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane (75-27-4)	0.6	1 U	1 U	1 U	1 U	2
Ethylbenzene (100-41-4)	30	1 U	1 U	1 U	1 U	1 U
Toluene (108-88-3)	40	1 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane (75-69-4)	2100	1 U	1 U	1 U	1 U	1 U
Xylenes (1330-20-7)	20	12	1 U	1 U	1 U	1 U
Polycyclic Aromatic Hydrocarbons	s ⁽³⁾ (ug/L)					
Fluorene (86-73-7)	280	4 U	4 U	4 U	2 U	2 U
1-Methylnaphthalene (90-12-0)	20	5 U	5 U	13	2 U	2 U
2-Methylnaphthalene (91-57-6)	20	7 U	7 U	13	3 U	3 U
Naphthalene (91-20-3)	20	7 U	7 U	7 U	2 U	2 U
Total Recoverable Petroleum Hyd	rocarbons ⁽⁴⁾ (µg/L)					
	5,000	13000	250 U	6600	250 U	250 U
Metals ⁽⁵⁾ (ug/L) Lead (7439-92-1)	15	NS	NS	NS	NS	NS

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

 $^{^2}$ SW-846 8260B, 3 SW-846 8310, 4 FL-PRO, 5 SW-846 6010B U = Analyte not detected above laboratory method detection limit **Bold** indicates exceedance of regulatory limits. NS = Location not sampled for this parameter μ g/L = micrograms per liter

TABLE 2-1 SUMMARY OF 1997 CAR GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 4 OF 5

Sample No. Sample Location Collect Date	GCTL ⁽¹⁾	NASP21MW16GW MW16 9/25/1996	NASP21MW17GW MW17 9/25/1996	NASP21MW18GW MW18 9/25/1996	NASP21MW19GW MW19 9/25/1996	NASP21MW20GW MW20 9/25/1996
Analyte (CAS #) Volatile Organic Compounds (2) (ug Benzene (71-43-2)	<u>//L)</u>	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane (75-27-4)	0.6	1 U	1 U	1 U	1 U	1 U
Ethylbenzene (100-41-4)	30	1 U	1 U	1 U	2	1 U
Toluene (108-88-3)	40	1 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane (75-69-4)	2100	1 U	1 U	2	1 U	1 U
Xylenes (1330-20-7)	20	1 U	1 U	1 U	2	1 U
Polycyclic Aromatic Hydrocarbons	s ⁽³⁾ (ug/L)					
Fluorene (86-73-7)	280	2 U	2 U	2 U	3	2 U
1-Methylnaphthalene (90-12-0)	20	2 U	2 U	2 U	48	3
2-Methylnaphthalene (91-57-6)	20	3 U	3 U	3 U	47	3 U
Naphthalene (91-20-3)	20	2 U	2 U	2 U	18	2 U
Total Recoverable Petroleum Hydr	l ·ocarbons ⁽⁴⁾ (μg/L)					
	5,000	250 U	250 U	250 U	15000	NS
Metals ⁽⁵⁾ (ug/L) Lead (7439-92-1)	15	NS	NS	NS	NS	NS

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

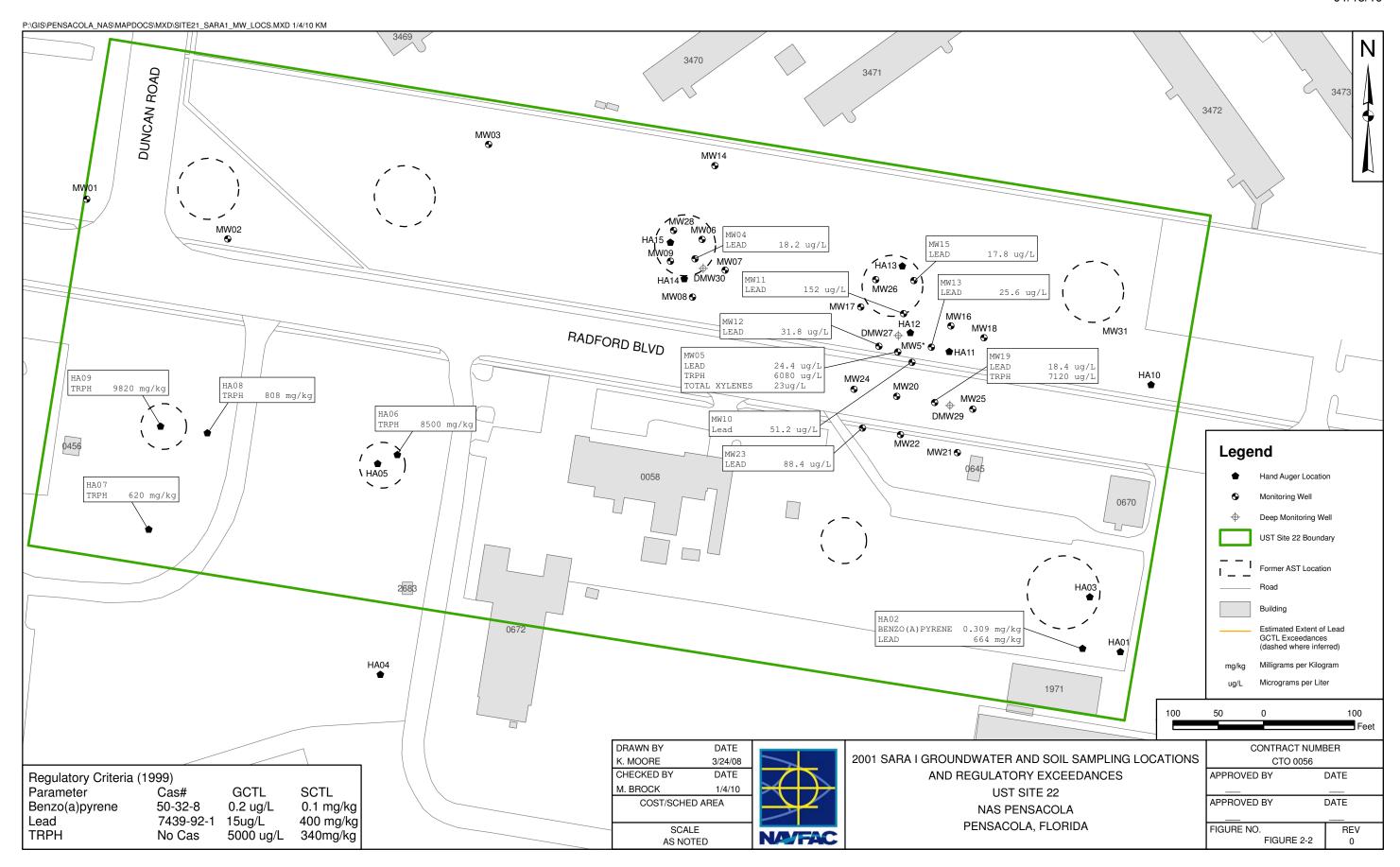
 $^{^2}$ SW-846 8260B, 3 SW-846 8310, 4 FL-PRO, 5 SW-846 6010B U = Analyte not detected above laboratory method detection limit **Bold** indicates exceedance of regulatory limits. NS = Location not sampled for this parameter μ g/L = micrograms per liter

TABLE 2-1 SUMMARY OF 1997 CAR GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 5 OF 5

Sample No. Sample Location Collect Date	GCTL ⁽¹⁾	NASP21MW21GW MW21 11/20/1996	NASP21MW22GW MW22 11/20/1996	NASP21MW23GW MW23 11/20/1996	NASP21MW24GW MW24 11/20/1996	NASP21MW25GW MW25 11/20/1996
Analyte (CAS #)						
Volatile Organic Compounds (2) (uc	<u>/L)</u>					
Benzene (71-43-2)	1	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane (75-27-4)	0.6	1 U	1 U	1 U	1 U	1 U
Ethylbenzene (100-41-4)	30	1 U	1 U	1 U	1 U	1 U
Toluene (108-88-3)	40	1 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane (75-69-4)	2100	1 U	1 U	1 U	1 U	1 U
Xylenes (1330-20-7)	20	1 U	1 U	1 U	1 U	1 U
Polycyclic Aromatic Hydrocarbons	s ⁽³⁾ (ug/L)					
Fluorene (86-73-7)	280	2 U	2 U	2 U	2 U	2 U
1-Methylnaphthalene (90-12-0)	20	2	2 U	2 U	2 U	2 U
2-Methylnaphthalene (91-57-6)	20	3 U	3 U	3 U	3 U	3 U
Naphthalene (91-20-3)	20	2 U	2 U	2 U	2 U	2 U
 Total Recoverable Petroleum Hydr	ocarbons ⁽⁴⁾ (µg/L)					
	5,000	290	250 U	250 U	250 U	250 U
Metals ⁽⁵⁾ (ug/L) Lead (7439-92-1)	15	NS	NS	NS	NS	NS

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

² SW-846 8260B, ³ SW-846 8310, ⁴ FL-PRO, ⁵ SW-846 6010B U = Analyte not detected above laboratory method detection limit **Bold** indicates exceedance of regulatory limits. NS = Location not sampled for this parameter μg/L = micrograms per liter



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TABLE 2-2 SUMMARY OF 2001 SARA I GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 1 OF 5

Sample No. Sample Location Collect Date	(ua/L)	NASP21MW02GW MW-2 6/24/2000	NASP21D002 Duplicate MW-2 6/27/2000	NASP21MW04GW MW-4 6/24/2000	NASP21MW05GW MW-5 6/24/2000	NASP21MW06GW MW-6 6/24/2000
Analyte (CAS #) Volatile (2) (ug/L) 1,1-Dichloroethene (75-35-4) Cis-1,2-Dichloroethene (156-59-2) Ethylbenzene (100-41-4) Xylenes (1330-20-7)	7 70 30 20	0.69 J 1 U 1 U 3 U	0.61 J 1 U 2.9 4 U	1 U 1 U 1 U 2.8 J	1 U 1 U 3.7 23	1 U 1 U 1 U 1 U
Polycyclic Aromatic Hydrocarbons 1-Methylnaphthalene (90-12-0) 2-Methylnaphthalene (91-57-6) Naphthalene (91-20-3)	⁽³⁾ (ug/L) 20 20 20	2 U 2 U 2 U	2 U 2 U 2 U	7.9 6.6 2.4	17.4 15.6 16.7	6.7 6.5 2.2 U
Total Recoverable Petroleum Hydro Metals (5) (ug/L) Lead (7439-92-1)	5,000 15	0.28 U 1.6 U	0.25 U 1.6 U	2,580 18.2	6,080 24.4	921 1.6 U
_	15	1.6 U	1.6 U	18.2	24.4	1.6 U

Notes:

Bold indicates exceedance of regulatory limits. U = Analyte not detected above laboratory method detection limit

J = analyte detected at an estimated concentration. $\mu g/L$ = micrograms per liter

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

 $^{^2}$ SW-846 8260B, 3 SW-846 8310, 4 FL-PRO, 5 SW-846 6010B

TABLE 2-2 SUMMARY OF 2001 SARA I GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 2 OF 5

Sample No.	GCTL (1)	NASP21MW07GW	NASP21D001	NASP21MW08GW	NASP21MW10GW	NASP21MW11GW
Sample Location		MW-7	Duplicate MW-7	MW-8	MW-10	MW-11
Collect Date		6/24/2000	6/24/2000	6/26/2000	6/24/2000	6/26/2000
Analyte (CAS #) Volatile (2) (ug/L) 1,1-Dichloroethene (75-35-4) Cis-1,2-Dichloroethene (156-59-2) Ethylbenzene (100-41-4) Xylenes (1330-20-7)	7	1 U	1 U	1 U	1 U	1 U
	70	1 U	1 U	1 U	1 U	1 U
	30	1 U	1 U	1 U	2.6	2
	20	3 U	3 U	3 U	13	11.1
Polycyclic Aromatic Hydrocarbons 1-Methylnaphthalene (90-12-0) 2-Methylnaphthalene (91-57-6) Naphthalene (91-20-3)	(3) (ug/L) 20 20 20 20	2 U 2 U 2 U	2 U 2 U 2 U	1.6 J 1.3 J 1.6 J	10.9 11.5 12.5	3 2 U 7.2
Total Recoverable Petroleum Hydro Metals ⁽⁵⁾ (ug/L) Lead (7439-92-1)	 	0.25 U 8.2 U	0.28 U 10.7	0.25 U 2.9	3,140 51.2	4,630 152

Notes:

Bold indicates exceedance of regulatory limits. U = Analyte not detected above laboratory method detection limit

J = analyte detected at an estimated concentration. $\mu g/L$ = micrograms per liter

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

 $^{^2}$ SW-846 8260B, 3 SW-846 8310, 4 FL-PRO, 5 SW-846 6010B

TABLE 2-2 SUMMARY OF 2001 SARA I GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 3 OF 5

Sample No. Sample Location Collect Date	(ua/L)	NASP21MW12GW MW-12 6/24/2000	NASP21MW13GW MW-13 6/24/2000	NASP21MW15GW MW-15 6/24/2000	NASP21MW16GW MW-16 6/24/2000	NASP21MW17GW MW-17 6/24/2000
Analyte (CAS #)						
Volatile (2) (ug/L)						
1,1-Dichloroethene (75-35-4)	7	1 U	1 U	1 U	1 U	1 U
Cis-1,2-Dichloroethene (156-59-2)	70					
Ethylbenzene (100-41-4)	30	1 U	1.8	1 U	1 U	1 U
Xylenes (1330-20-7)	20	3 U	3 U	3 U	3 U	3 U
Polycyclic Aromatic Hydrocarbons	⁽³⁾ (ug/L)					
1-Methylnaphthalene (90-12-0)	20	2 U	3.7	2.2 U	2.2 U	2 U
2-Methylnaphthalene (91-57-6)	20	2 U	2.7	2.2 U	2.2 U	2 U
Naphthalene (91-20-3)	20	2 U	2.2 U	2.2 U	2.2 U	2 U
Total Recoverable Petroleum Hydro	l ocarbons ⁽⁴⁾ (μg/L)					
	5,000	0.25 U	3,490	0.25 U	0.28 U	0.25 U
<u>Metals ⁽⁵⁾ (ug/L)</u> Lead (7439-92-1)	15	31.8	25.6	17.8	14.1	12.3

Notes:

Bold indicates exceedance of regulatory limits. U = Analyte not detected above laboratory method detection limit

J = analyte detected at an estimated concentration. μ g/L = micrograms per liter

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

 $^{^2}$ SW-846 8260B, 3 SW-846 8310, 4 FL-PRO, 5 SW-846 6010B

TABLE 2-2 SUMMARY OF 2001 SARA I GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 4 OF 5

Sample No. Sample Location Collect Date	GCTL (1)	NASP21MW18GW MW-18 6/26/2000	NASP21MW19GW MW-19 6/25/2000	NASP21MW21GW MW-21 6/25/2000	NASP21MW22GW MW-22 6/25/2000	NASP21MW23GW MW-23 6/25/2000
Analyte (CAS #) Volatile (2) (ug/L) 1,1-Dichloroethene (75-35-4)	7	1 U	1 U	1 U	1 U	1 U
Cis-1,2-Dichloroethene (156-59-2) Ethylbenzene (100-41-4) Xylenes (1330-20-7)	70 30 20	1 U 1 U 3 U	1 U 2.1 3 U	1 U 1 U 3 U	1 U 0.8 J 2.2 J	1 U 1 U 3 U
Polycyclic Aromatic Hydrocarbons 1-Methylnaphthalene (90-12-0) 2-Methylnaphthalene (91-57-6) Naphthalene (91-20-3)	⁽³⁾ (ug/L) 20 20 20	2 U 2 U 2 U	11.8 11.5 7.8	2 U 2 U 2 U	4.9 4.6 4.4	2.2 U 2.2 U 2.2 U
Total Recoverable Petroleum Hydro	ocarbons ⁽⁴⁾ (µg/L) 5,000	0.28 U	7,120	0.25 U	1,270	0.25 U
Metals ⁽⁵⁾ (ug/L) Lead (7439-92-1)	15	3.5	18.4	10.6	14.0	88.4

Notes:

Bold indicates exceedance of regulatory limits. U = Analyte not detected above laboratory method detection limit

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

 $^{^2}$ SW-846 8260B, 3 SW-846 8310, 4 FL-PRO, 5 SW-846 6010B

J = analyte detected at an estimated concentration. $\mu g/L = micrograms$ per liter

TABLE 2-2 SUMMARY OF 2001 SARA I GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 5 OF 5

Sample No. Sample Location Collect Date	GCTL ⁽¹⁾ (µg/L)	NASP21MW24GW MW-24 6/25/2000	NASP21MW25GW MW-25 6/25/2000	NASP21MW28GW MW-28 6/24/2000	NASP21MW29GW MW-29 6/25/2000	NASP21MW30GW MW-30 6/24/2000		
Analyte (CAS #)								
Volatile (2) (ug/L)								
1,1-Dichloroethene (75-35-4)	7	1 U	1 U	1 U	1 U	1 U		
Cis-1,2-Dichloroethene (156-59-2)	70	1 U	1 U	1 U	1 U	1.2		
Ethylbenzene (100-41-4)	30	1 U	1 U	1 U	1 U	1 U		
Xylenes (1330-20-7)	20	3 U	3 U	3 U	3 U	3 U		
Polycyclic Aromatic Hydrocarbons	⁽³⁾ (ug/L)							
1-Methylnaphthalene (90-12-0)	20	2.2 U	2.2 U	2.2 U	2 U	2 U		
2-Methylnaphthalene (91-57-6)	20	2.2 U	2.2 U	2.2 U	2 U	2 U		
Naphthalene (91-20-3)	20	2.2 U	2.2 U	2.2 U	2 U	2 U		
	5,000	0.25 U	0.28 U	0.28 U	0.25 U	0.25 U		
Metals ⁽⁵⁾ (ug/L) Lead (7439-92-1)	15	8.6	12.6	1.6 U	1.6 U	1.6 U		
2000 (1400 02 1)	13	0.0	12.0	1.00	1.50	1.00		

Notes:

Bold indicates exceedance of regulatory limits. U = Analyte not detected above laboratory method detection limit

J = analyte detected at an estimated concentration. $\mu g/L$ = micrograms per liter

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

 $^{^2}$ SW-846 8260B, 3 SW-846 8310, 4 FL-PRO, 5 SW-846 6010B

TABLE 2-3 SUMMARY OF 2001 SARA I SOIL ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 1 OF 3

Sample No.		NASP21HA013.5	NASP21HA0205	NASP21HA0302	NASP21HA045.5	NASP21HA055.5
Sample Location	FDEP SCTL	HA01	HA02	HA03	HA04	HA05
Collect Date		5/8/2000	5/8/2000	5/8/2000	5/8/2000	5/8/2000
Sample Depth (bls)	DE1 ¹ /DE2 ² /LE ³	3.5 feet	5 feet	2 feet	5.5 feet	5.5 feet
Analyte (CAS #)	(mg/kg)					
Polycyclic Aromatic Hydrocarbons	⁽⁵⁾ (ua/L)					
Benzo(a)anthracene (56-55-3)	1.4/5.0/3.2	.069 U	0.289	0.069 U	0.072 U	0.069 U
Benzo(a)pyrene (50-32-8)	0.1/0.5/8	.069 U	0.309	0.069 U	0.072 U	0.069 U
Benzo(b)fluoranthene (205-99-2)	1.4/4.8/10	.069 U	0.28	0.069 U	0.072 U	0.069 U
Benzo(g,h,i)perylene (191-24-2)	2,300/41,000/32,000	.069 U	0.185	0.069 U	0.072 U	0.069 U
Benzo(k)fluoranthene (207-08-9)	15/52/25	.069 U	0.162	0.069 U	0.072 U	0.069 U
Chrysene (218-01-9)	140/450/77	.069 U	0.288	0.069 U	0.072 U	0.069 U
Fluoranthene (206-44-0)	2,900/48,000/1,200	0.34 U	0.762	0.34 U	0.36 U	0.34 U
Indeno(1,2,3-cd)pyrene (193-39-5)	1.5/5.3/28	0.69 U	0.246	0.69 U	0.072 U	.0.69 U
Naphthalene (91-20-3)	40/270/1.7	0.34 U	0.35 U	0.34 U	0.36 U	0.34 U
Phenanthrene (85-01-8)	2,000/30,000/250	0.34 U	0.212 J	0.34 U	0.36 U	0.34 U
Pyrene (129-00-0)	2,200/37,000/880	0.34 U	0.525	0.34 U	0.36 U	0.34 U
1-Methylnaphthalene (90-12-0)	68/470/2.2	0.34 U	0.190 J	0.34 U	0.36 U	0.34 U
2-Methylnaphthalene (91-57-6)	80/560/6.1	0.34 U	0.250 J	0.34 U	0.36 U	0.34 U
Total Recoverable Petroleum Hydro	(6) ((I.)					
Total Recoverable Petroleum Hydro	340/2,500/340	20.3	36.6	8.6 U	38.6	8.6 U
	340/2,300/340	20.3	30.0	0.0 0	30.0	0.0 0
Metals ⁴ (mg/kg)						
Aluminum (7429-90-5)	72,000/*/NA	1580	2500	106	156	87.3 U
Antimony (7440-36-0)	26/240/5	2.7 U,J	4.3 U	1.2 U	0.4 U	0.4 U
Arsenic (no CAS)	0.8/3.7/29	0.55 U	1.8 U	0.58 U	0.57 U	0.58 U
Barium (7440-39-3)	5,200/87,000/1,600	5.5	82.0	2.8	2.8	2.5
Cadmium (7440-43-9)	75**/1,300/8.0	0.3	0.57	0.06 U	0.05 U	0.06 U
Calcium (no CAS)	N/A	1800	1360	974	253	134
Chromium (18540-88-2)	210/420/38	3.9	7.6	0.55 U	0.54 U	0.6 U
Cobalt (7440-48-4)	4,700/110,000/NA	0.15 U	0.99 U	0.13 U	0.13 U	0.13 U
Copper (7440-50-8)	2,900/76,000/NA	4.8	187	3.2	2.5	2.5
Iron (7439-89-6)	23,000/480,000/NA	855	4610	145	109	71.4
Lead (7439-92-1)	400/920/NA	65.5	664	1.4 U	4.1 U	1.6 U
Magnesium (no CAS)	N/A	106	183	26.9 U	12.1 U	10.1 U
Manganese (7439-96-5)	1,600/22,000/NA	47.8	157	1.9 U	2.0 U	1.2 U
Mercury (7439-97-6)	3.4/26/2.1	0.01 U	0.26	0.01 U	0.01 U	0.01 U
Nickel (7440-02-0)	1,500/28,000/130	1.0 U	10.2	0.22 U	0.02 U	0.24 U
Selenium (7782-49-2)	390/10,000/5	0.32 U	1.5	0.34 U	0.34 U	0.35 U
Silver (7440-22-4)	390/9100/17	0.15 U	0.17 U	0.16 U	0.16 U	0.16 U
Sodium (no CAS)	N/A	200	277	204	203	203
Vanadium (7440-62-2	510/7400/980	2.4 U	4.4	0.25 U	0.30 U	0.12 U
Zinc (7440-66-6)	23,000/560,000/6,000	14.3	415	6.9	9.5	6.2
Notes:						•

Notes:

NA indicates no critria avialable for this parameter

¹ DE1= Direct Exposure limit for residential area from Chapter 62-777, F.A.C.

 $^{^{2}}$ DE2= Direct Exposure limit for industrial area from Chapter 62-777, F.A.C.

 $^{^{\}rm 3}$ LE= Leachability for groundwater limit from Chapter 62-777, F.A.C.

⁴ SW-846 6010B and 7470A

⁵8270

⁶ FL-PRO

^{*} Contaminant is not a health concern for this default exposure scenario.

^{**} Direct exposure value based on acute toxicity considerations.

J = analyte detected at an estimated concentration. U = Analyte not detected above laboratory method detection limit. **Bold** indicates exceedance of regulatory limits.

TABLE 2-3 SUMMARY OF 2001 SARA I SOIL ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 2 OF 3

Sample No.		NASP21HA0606	NASP21HA0704	NASP21HA0801	NASP21HA092.5	NASP21HA1002	NASP21HA1105
Sample Location	FDEP SCTL	HA06	HA07	HA08	HA09	HA10	HA11
Collect Date		5/8/2000	5/8/2000	5/8/2000	5/8/2000	5/9/2000	5/9/2000
Sample Depth (bls)	DE1 ¹ /DE2 ² /LE ³	6 feet	4 feet	1 foot	2.5 feet	2 feet	5 feet
Analyte (CAS #)	(mg/kg)						
Polycyclic Aromatic Hydrocarbons	 ⁽⁵⁾ (ug/L)						
Benzo(a)anthracene (56-55-3)	1.4/5.0/3.2	0.28 U	0.072 U	0.073 U	0.31 U	0.069 U	0.069 U
Benzo(a)pyrene (50-32-8)	0.1/0.5/8	.071 U	0.072 U	0.073 U	0.077 U	0.069 U	0.069 U
Benzo(b)fluoranthene (205-99-2)	1.4/4.8/10	.071 U	0.072 U	0.073 U	0.077 U	0.069 U	0.069 U
Benzo(g,h,i)perylene (191-24-2)	2,300/41,000/32,000	.071 U	0.072 U	0.073 U	0.077 U	0.069 U	0.069 U
Benzo(k)fluoranthene (207-08-9)	15/52/25	.071 U	0.072 U	0.073 U	0.077 U	0.069 U	0.069 U
Chrysene (218-01-9)	140/450/77	0.28 U	0.072 U	0.073 U	0.31 U	0.069 U	0.069 U
Fluoranthene (206-44-0)	2,900/48,000/1,200	1.4 U	0.36 U	0.37 U	1.5 U	0.34 U	0.34 U
Indeno(1,2,3-cd)pyrene (193-39-5)	1.5/5.3/28	.071 U	0.072 U	0.073 U	0.77 U	0.069 U	0.069 U
Naphthalene (91-20-3)	40/270/1.7	0.36 U	0.36 U	0.37 U	0.38 U	0.34 U	0.34 U
Phenanthrene (85-01-8)	2,000/30,000/250	1.4 U	0.36 U	0.37 U	1.5 U	0.34 U	0.34 U
Pyrene (129-00-0)	2,200/37,000/880	1.4 U	0.36 U	0.37 U	1.5 U	0.34 U	0.34 U
1-Methylnaphthalene (90-12-0)	68/470/2.2	0.36 U	0.36 U	0.37 U	0.38 U	0.34 U	0.34 U
2-Methylnaphthalene (91-57-6)	80/560/6.1	0.36 U	0.36 U	0.37 U	0.38 U	0.34 U	0.34 U
, , , , , , , , , , , , , , , , , , , ,							
Total Recoverable Petroleum Hydro	carbons ⁽⁶⁾ (µg/L)						
	340/2,500/340	8,500	620	808	9,820	8.6 U	8.09 J
,							
Metals 4 (mg/kg)							
Aluminum (7429-90-5)	72,000/*/NA	53.7 U	59.3 U	763	61.9 U	76.1	511
Antimony (7440-36-0)	26/240/5	0.42 U	0.42 U	0.39 U	0.39 U	0.24 U	0.23 U
Arsenic (no CAS)	0.8/3.7/29	0.6 U	0.61 U	0.57 U	0.57 U	0.35 U	0.34 U
Barium (7440-39-3)	5,200/87,000/1,600	2.5	2.4	3.8	2.5	1.9	2.5
Cadmium (7440-43-9)	75**/1,300/8.0	0.06 U	0.06 U	0.05 U	0.05 U	0.04 U	0.06 U
Calcium (no CAS)	N/A	145	121	988	183	47.6 U	143
Chromium (18540-88-2)	210/420/38	0.56 U	0.47 U	1.7 U	0.49 U	0.44 U	0.74 U
Cobalt (7440-48-4)	4,700/110,000/NA	0.14 U	0.14 U	0.13 U	0.13 U	0.08 U	0.09 U
Copper (7440-50-8)	2,900/76,000/NA	2.9	2.5	3.3	2.9	1.7	2.7
Iron (7439-89-6)	23,000/480,000/NA	39	41.0	384	32.2	62.7 U	308 U
Lead (7439-92-1)	400/920/NA	1.2 U	6.5 U	27.0	16.9	4.4 U	30.7
Magnesium (no CAS)	N/A	11.7 U	7.7 U	41.6 U	8.7 U	7.1 U	14.1 U
Manganese (7439-96-5)	1,600/22,000/NA	0.94 U	0.79 U	3.2	0.78 U	1.0 U	1.8 U
Mercury (7439-97-6)	3.4/26/2.1	0.01 U	0.01 U	0.01	0.01	0.03 U	0.05 U
Nickel (7440-02-0)	1,500/28,000/130	0.64 U	0.23 U	0.37 U	0.22 U	0.22 U	0.34 U
Selenium (7782-49-2)	390/10,000/5	0.45 U	0.39 U	0.44 U	0.34 U	0.21 U	0.25 U
Silver (7440-22-4)	390/9100/17	0.17 U	0.17 U	1.2 U	0.16 U	0.10 U	0.09 U
Sodium (no CAS)	N/A	174	185	199	193	99.8	102
Vanadium (7440-62-2	510/7400/980	0.13 U	0.17 U	1.5 U	0.12 U	1.13 U	0.74
Zinc (7440-66-6)	23,000/560,000/6,000	6.0	7.4	20.9	8.3	6.6	17.0

Notes:

 $\mbox{\bf Bold}$ indicates exceedance of regulatory limits.

NA indicates no critria avialable for this parameter

¹ DE1= Direct Exposure limit for residential area from Chapter 62-777, F.A.C.

² DE2= Direct Exposure limit for industrial area from Chapter 62-777, F.A.C.

 $^{^{\}rm 3}$ LE= Leachability for groundwater limit from Chapter 62-777, F.A.C.

 $^{^{4}}$ SW-846 6010B and 7470A

⁵ 8270

⁶ FL-PRO

^{*} Contaminant is not a health concern for this default exposure scenario.

^{**} Direct exposure value based on acute toxicity considerations.

J = analyte detected at an estimated concentration.

TABLE 2-3 SUMMARY OF 2001 SARA I SOIL ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 3 OF 3

Sample No.		NASP21HA1205	NASP21HA1302	NASP21HA1405	NASP21HA154.5	NASP21HAD01
Sample Location	FDEP SCTL	HA12	HA13	HA14	HA15	154.5 Duplicate
Collect Date		5/9/2000	5/9/2000	5/9/2000	5/10/2000	5/10/2000
Sample Depth (bls)	DE1 ¹ /DE2 ² /LE ³	5 feet	2 feet	5 feet	4.5 feet	4.5 feet
(2.2.2.1)	(mg/kg)					
Analyte (CAS #)	(5) (ug/L)					
Polycyclic Aromatic Hydrocarbons (5) (ug/L) Benzo(a)anthracene (56-55-3) 1.4/5.0/3.2		0.069 U	0.069 U	0.085 U	0.069 U	0.069 U
Benzo(a)pyrene (50-32-8)	0.1/0.5/8	0.069 U	0.069 U	0.085 U	0.069 U	0.069 U
Benzo(b)fluoranthene (205-99-2)	1.4/4.8/10	0.069 U	0.069 U	0.085 U	0.069 U	0.069 U
Benzo(g,h,i)perylene (191-24-2)	2,300/41,000/32,000	0.069 U	0.069 U	0.085 U	0.069 U	0.069 U
Benzo(k)fluoranthene (207-08-9)	15/52/25	0.069 U	0.069 U	0.085 U	0.069 U	0.069 U
Chrysene (218-01-9)	140/450/77	0.069 U	0.069 U	0.085 U	0.069 U	0.069 U
Fluoranthene (206-44-0)	2,900/48,000/1,200	0.34 U	0.35 U	0.42 U	0.34 U	0.34 U
Indeno(1,2,3-cd)pyrene (193-39-5)	1.5/5.3/28	0.069 U	0.069 U	0.085 U	0.069 U	0.069 U
Naphthalene (91-20-3)	40/270/1.7	0.34 U	0.35 U	0.42 U	0.34 U	0.34 U
Phenanthrene (85-01-8)	2,000/30,000/250	0.34 U	0.35 U	0.42 U	0.34 U	0.34 U
Pyrene (129-00-0)	2,200/37,000/880	0.34 U	0.35 U	0.42 U	0.34 U	0.34 U
1-Methylnaphthalene (90-12-0)	68/470/2.2	0.34 U	0.35 U	0.42 U	0.34 U	0.34 U
2-Methylnaphthalene (91-57-6)	80/560/6.1	0.34 U	0.35 U	0.42 U	0.34 U	0.34 U
Total Recoverable Petroleum Hydro	carbons ⁽⁶⁾ (µg/L)					
	340/2,500/340	8.6 U	14.1	10 U	12.1	10.7
Metals 4 (mg/kg)						
Aluminum (7429-90-5)	72,000/*/NA	20.7 U	293	150	154	270
Antimony (7440-36-0)	26/240/5	0.24 U	0.24 U	0.29 U	0.25 U	0.24 U
Arsenic (no CAS)	0.8/3.7/29	0.35 U	0.34 U	0.42 U	0.36 U	0.34 U
Barium (7440-39-3)	5,200/87,000/1,600	1.8	28.7	2.5	2.1	3.0
Cadmium (7440-43-9)	75**/1,300/8.0	0.03 U	0.10 U	0.05 U	0.03 U	0.03 U
Calcium (no CAS)	N/A	40.5 U	137	71.5 U	53.1	67.3
Chromium (18540-88-2)	210/420/38	0.20 U	7.2	0.44 U	0.38 U	1.2 U
Cobalt (7440-48-4)	4,700/110,000/NA	0.08 U	0.16 U	0.10U	0.08 U	0.08 U
Copper (7440-50-8)	2,900/76,000/NA	1.4 U	4.6	2.5	1.5	1.2
Iron (7439-89-6)	23,000/480,000/NA	12.2 U	697	34.4 U	87.4	190
Lead (7439-92-1)	400/920/NA	2.7 U	146	17.5	3.3	5.8
Magnesium (no CAS)	N/A	4.0 U	29.5 U	8.1 U	10.8	17.5
Manganese (7439-96-5)	1,600/22,000/NA	0.54 U	9.5	0.70 U	1.2 U	3.4
Mercury (7439-97-6)	3.4/26/2.1	0.02 U	0.09 U	0.03 U	0.03 U	0.04 U
Nickel (7440-02-0)	1,500/28,000/130	0.16 U	0.57 U	0.35 U	0.17 U	1.3 U
Selenium (7782-49-2)	390/10,000/5	0.21 U	79.5 U	0.25 U	0.21 U	0.20 U
Silver (7440-22-4)	390/9100/17	0.10 U	0.10 U	0.12 U	0.10 U	0.09 U
Sodium (no CAS)	N/A	97.9	107	136	104	104
Vanadium (7440-62-2	510/7400/980	0.07 U	1.4	0.13 U	0.21 U	0.49
Zinc (7440-66-6)	23,000/560,000/6,000	4.8 U	48.0	9.6	5.7	8.5

Notes:

 $\mbox{\bf Bold}$ indicates exceedance of regulatory limits.

NA indicates no critria avialable for this parameter

¹ DE1= Direct Exposure limit for residential area from Chapter 62-777, F.A.C.

 $^{^{2}}$ DE2= Direct Exposure limit for industrial area from Chapter 62-777, F.A.C.

 $^{^{\}rm 3}$ LE= Leachability for groundwater limit from Chapter 62-777, F.A.C.

⁴ SW-846 6010B and 7470A

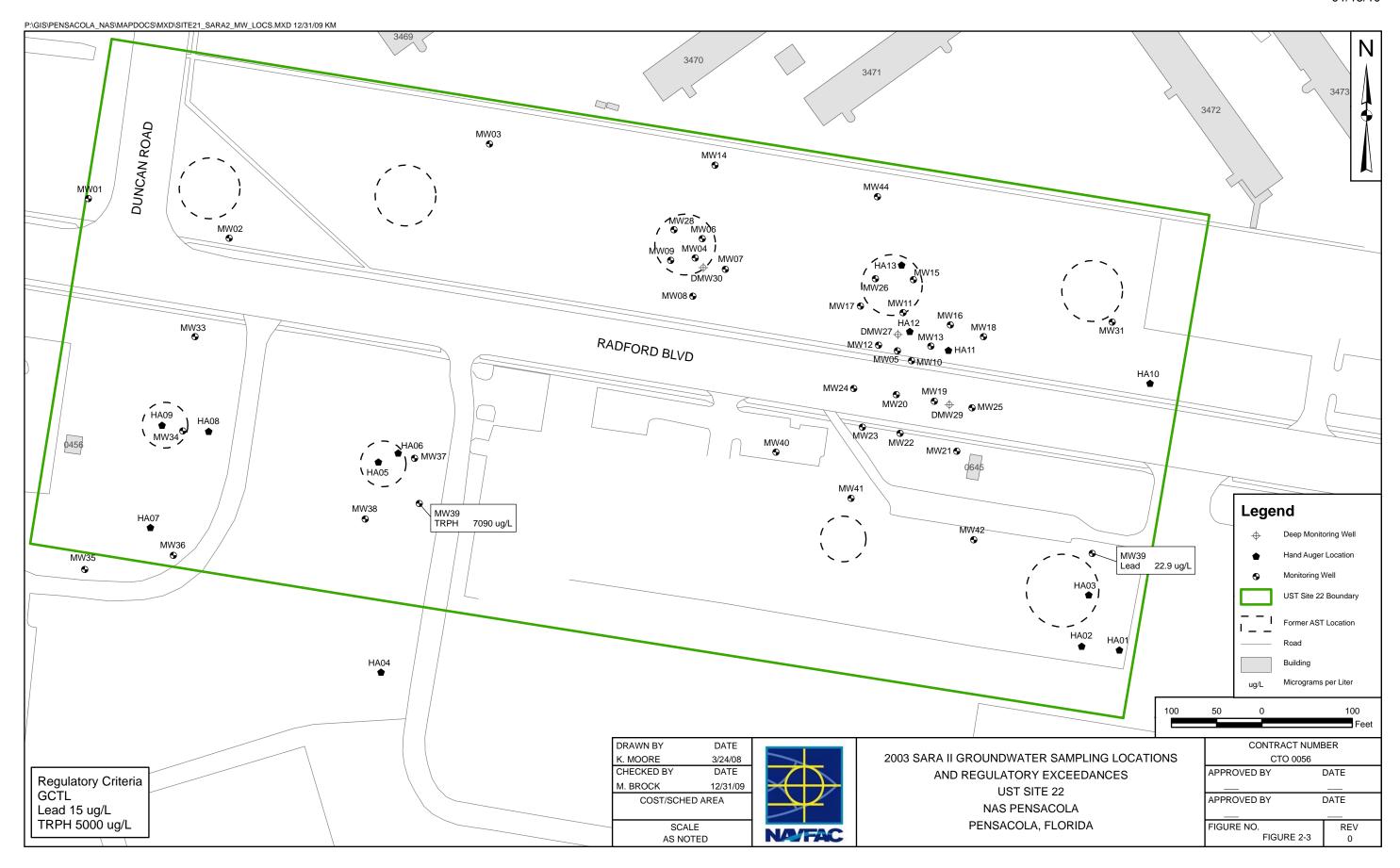
⁵8270

⁶ FL-PRO

 $[\]ensuremath{^{\star}}$ Contaminant is not a health concern for this default exposure scenario.

^{**} Direct exposure value based on acute toxicity considerations.

J = analyte detected at an estimated concentration.



TtNUS/TAL-09-078-1522-5.1 2-19 CTO 0056

TABLE 2-4 SUMMARY OF 2003 SARA II GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA

Monitoring Well ID	Sample ID Sample Date		Lead ¹ GCTL (µg/L)	TRPH ² GCTL (µg/L)
Well ID			15	5000
MW33	PEN-21-MW33-01	2/11/03	NA	170 U
MW34	PEN-21-MW34-01	2/11/03	NA	285
MW35	PEN-21-MW35-01	2/11/03	NA	2,710 / 2,680
MW36	PEN-21-MW36-01	2/11/03	NA	1,900
MW37	PEN-21-MW37-01	2/11/03	NA	170 U
MW38	PEN-21-MW38-01	2/11/03	NA	894
MW39	PEN-21-MW39-01	2/11/03	NA	7,090
MW40	PEN-21-MW40-01	2/11/03	5.1	NA
MW41	PEN-21-MW41-01	2/11/03	6.5	NA
MW42	PEN-21-MW42-01	2/11/03	3.3 U / 4.1 U	NA
MW43	PEN-21-MW43-01	2/11/03	22.9	NA
MW44	PEN-21-MW44-01	2/11/03	5.0	NA

Notes:

GCTL = Groundwater Cleanup Target Level established in Chapter 62-770, FAC

U = analyte not detected above laboratory method detection limit.

NA = Location not analyzed for this parameter

Concentrations in bold exceed the GCTL.

Two values in one square indicate duplicate sample

¹SW846-6010B ² FL-PRO

3.0 SITE ASSESSMENT METHODOLOGY

Site 22 is a designated UST site and this SARA III has been completed in accordance with the FDEP Petroleum Contaminated Site Cleanup Criteria Chapter 62-770 of the F.A.C. under CLEAN IV Contract N62467-04-D-0055. All field activities including: soil sampling, monitoring well installation, and groundwater sampling were conducted in accordance with FDEPs Standard Operating Procedures (SOPs) for Field Activities (FDEP, 2008). Whenever the FDEP SOPs did not address a specific task, TtNUS deferred to the TtNUS Corporate SOPs (TtNUS, 2007).

The site assessment methodologies used during this investigation are discussed below. The results of the investigation are presented in Section 4.0. To alleviate concerns of base personnel and the FDEP, an archeologist was on site throughout the field event to oversee intrusive activities in culturally and historically sensitive areas. These concerns were raised during the scoping meetings, and therefore, the archeologist on site observed the drilling and hand auger activities and inspected the soil samples to reassure that no historically or culturally sensitive area was disturbed.

Due to the number of samples taken through the years and the different results gathered, a triad approach was used in planning and implementing this investigation. Strategic planning was used to target areas where high detections of contaminants or previous information have gaps or lack of proper delineation of potential hot spot or plumes. Dynamic work strategies were implemented using the DPT sampling techniques to have a rapid means of collecting soil and groundwater samples with the assistance of field experience and technical expertise. Real-time measurement technologies were used in cooperation with an on-site laboratory that had a 24 hour turnaround for groundwater and soil samples.

Soil and groundwater samples were collected at UST Site 22 (IR Site 21) as a part of the 2007 and 2009 investigation. Soil borings were advanced by hand auger and DPT. Field screening observations including OVA screening visual inspection were used to determine which samples were submitted to an on-site mobile laboratory. One or more soil samples per soil boring were submitted to the mobile laboratory and the analytical results were used to determine which samples would be submitted for off-site confirmation analysis. TtNUS staff also compared the mobile laboratory analytical results to the SCTLs and GCTLs in Chapter 62-777, F.A.C. and Natural Attenuation Default Concentration (NADC) in Chapter 62-777, F.A.C.

Groundwater samples were also submitted to a fixed-base laboratory for a quick turn around analysis for lead content. This information provided the necessary data to determine the sampling progression.

3.1 SOIL SAMPLING PLAN

The subsurface soil samples were collected at UST Site 22 to further delineate the extent of soil contamination. Previous investigations and comments received from FDEP determined the soil sample collection should be completed in the two shaded areas shown on Figure 3-1. Thirty-one soil borings were advanced to a depth of 10 feet below land surface (bls). Visual observations and data from the on-site mobile laboratory determined the sampling progressions., Field observations, such as staining of soil and/or odor, are important factors in choosing the samples sent to the on-site laboratory since many of the soil contaminants detected during the initial assessment do not readily volatilize. The soil samples were collected using hand augers and stainless steel bowls and spoons from discrete intervals depending on field screening results. Surface soil samples (0 to 6 inches bls) were not collected because most of the surface material was removed during the cleanup activities following Hurricane Ivan. Additionally, beach sand and fill material were brought from outside the base for a naturalized landscaping project. Efforts were made in the field to sample below this imported, non-representative material.

The soil sampling depth was limited to 10 feet bls due to the presence of groundwater and proximity to the Pensacola Bay. Previously groundwater measurements indicated the groundwater potentiometric surface to be present approximately 1 to 3 feet bls (see Figures 4-1, 4-2 and 4-3). Soil samples were collected from above the saturated zone of the water table. The soil samples were collected in accordance with FDEP SOPs Field Sampling (FS) 3200, Subsurface Soil Sampling (FDEP, 2008) and the sampling methodology was compliant with FDEP's Global Risk Based Corrective Action (RBCA) Rule 62-780.

The soil samples collected at UST Site 22 were analyzed on site by a mobile laboratory for benzene, ethylbenzene, toluene, xylenes (BTEX) and naphthalene. The data obtained from the on-site mobile laboratory was used to determine soil boring progression as well as placement for new monitoring wells. Based on low positive detections of BTEX and naphthalene, the decision was reached to decrease the amount of DPT soil samples.

Five of the soil boring samples were sent to an off-site laboratory for confirmation analysis for VOCs, MTBE, PAHs, 1- and 2-methylnaphthalene, and TRPH. The laboratory analytical methods used are specified in Table 3-1. No soil samples were collected during the supplemental sampling event conducted in January 2009.

TABLE 3-1 2007 SARA III DPT SOIL ANALYTICAL SUMMARY UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA

Analysis	Mobile Laboratory	Off-site Laboratory
	No. of Samples Analyzed	No. of Samples Analyzed
BTEX (SW-846 5035/8260B)	31	5
PAH (SW-846 8270C SIM)	31	5
TRPH (FDEP FL-PRO)	0	5

BTEX = Benzene, toluene, ethylbenzene, xylene PAH = Polycyclic Aromatic Hydrocarbons TRPH = Total recoverable petroleum hydrocarbons SW = Solid waste SIM = Selected ion monitor FL-PRO = Florida Petroleum Range Organics

3.2 DPT GROUNDWATER SAMPLING PLAN

Concurrent with the soil sampling investigation, TtNUS collected groundwater samples from 42 soil boring locations using DPT. DPT locations were determined by field screening activities coincidental with the soil sampling. Thirty eight groundwater samples were taken immediately below the water table, generally between 10 and 17 feet bls. Four groundwater samples were taken from 19 to 30 feet bls. The 42 DPT samples were submitted to a National Environmental Laboratory Accreditation Certification (NELAC) certified on-site mobile laboratory for analysis of BTEX and naphthalene. DPT groundwater samples were collected using DPT hole punch groundwater sampling. Groundwater samples were collected using a peristaltic pump until turbidity was below 20 nephelometric turbidity units (NTUs) or until it was stabilized.

In addition to the mobile laboratory analysis, 11 samples were sent to an off-site laboratory for confirmation analysis. Although all samples were not analyzed for all the parameters, the confirmation analysis included VOCs, MTBE, PAHs plus 1- and 2-methylnaphthalene, TRPH, and lead. The laboratory analytical methods are specified in Table 3-2.

TABLE 3-2 2007 SARA III DPT GROUNDWATER ANALYTICAL SUMMARY UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA

Analysis	Mobile Laboratory	Off-site Laboratory
	No. of Samples	No. of Samples
	Analyzed	Analyzed
BTEX (SW-846 5030B/8260B)	42	11
PAH (SW-846 8270C SIM)	42	5
Lead (SW-846 6010B)	7	3

BTEX = Benzene, toluene, ethylbenzene, xylene PAH = Polycyclic Aromatic Hydrocarbons SW = Solid waste SIM = Selected ion monitor

3.3 MICRO WELL AND MONITORING WELL INSTALLATION PLAN

Due to hurricane reconstruction activities, 16 previously installed monitoring wells (MW01, MW03, MW14, MW26, MW30, MW31, MW39, MW40, MW45, MW46, MW47, MW50, MW54, MW55, MW56 and MW57) could not be located. However, only three of the monitoring wells including: MW46R, MW54R and MW31R were replaced based on their strategic locations. In addition to the three replacement wells, TtNUS installed 16 additional permanent micro type monitoring wells. The locations of these wells were determined in the field, in part based on the DPT groundwater sampling results. All monitoring wells were installed and constructed in accordance with Navy and FDEP guidance documents. No monitoring wells were installed during the January 2009 field event.

3.4 GROUNDWATER SAMPLING

Prior to obtaining groundwater samples, water levels and total well depths were measured for all available wells for groundwater pieziometric determination. The wells were then purged using a peristaltic pump and a low-flow quiescent purging technique. Purging completion was conducted in accordance with FDEP SOP FS 2212, Well Purging Techniques (FDEP, 2008).

In April and May of 2007, groundwater samples were collected from the 16 new wells, 23 existing monitoring wells, and 3 replacement wells. The monitoring and micro wells were sampled for target compound list (TCL) VOCs, PAHs, TRPH, and lead. However, all the groundwater samples were not analyzed for all the parameters. To determine the appropriate analyses for each groundwater sample collected, information from previous analytical data and site observations were considered. Groundwater

samples were collected in accordance with FDEP SOP FS 2220, Groundwater Sampling Techniques (FDEP, 2008). Laboratory methods and the number of samples are presented in Table 3-3.

TABLE 3-3
2007 SARA III GROUNDWATER SAMPLE ANALYTICAL SUMMARY
UST SITE 22
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

	Off-site Laboratory
Analysis	No. of Samples Analyzed
BTEX (SW-846 5030B/8260B)	17
PAH (SW-846 8270C SIM)	17
Lead (SW-846 6010B)	32
TRPH (FDEP FL-PRO)	17

BTEX = Benzene, toluene, ethylbenzene, xylene PAH = Polycyclic aromatic hydrocarbons SW = Solid waste

SIM = selected ion monitor

TRPH = Total recoverable petroleum hydrocarbons FL-PRO =Florida Petroleum Range Organics

During the January 2009 field event, groundwater samples were collected from 17 permanent monitoring wells. Specific location and analysis information is presented in Table 3-4. All monitoring wells were sampled for lead, manganese, and zinc, one well (MW73) was sampled for VOCs as well. Groundwater samples were collected in accordance with FDEP SOP FS 2220, Groundwater Sampling Techniques (FDEP, 2008).

TABLE 3-4
2009 SARA III GROUNDWATER SAMPLE ANALYTICAL SUMMARY
UST SITE 22
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

	Off-site La	aboratory
Analysis	Location Parameter Analysis	No. of Samples Analyzed
VOCs (SW-846 /8260B)	MW73	1
Lead (SW-846 6010B)	MW01,MW04, MW08, MW10, MW11, MW21,	17
Manganese (SW-846 6010B)	MW28, MW34, MW36, MW39, MW43, MW44,	17
Zinc (SW-846 6010B)	MW46R, MW48, MW61, MW69, MW73	17

VOCs=Volatile organic compounds SW = Solid waste

3.5 SAMPLE HANDLING

Sample handling includes the selection of sample containers, preservatives, allowable holding times, sample packaging, shipping and appropriate chain of custody procedures. Samples were packaged and shipped in general accordance with FDEP SOP 001/01 FS 1000, General Sampling (FDEP, 2008) and applicable sections of FS 2200, Groundwater Sampling and FS 3000, Soil Sampling.

Sampling activities were documented in a site-specific field logbook, and samples were transmitted under chain-of-custody protocols to the laboratory. Custody of samples was maintained and documented at all times. Chain-of-custody began with the collection of the samples in the field. FDEP SOP FS 1000 (FS 1009, Sample Documentation and Evidence Custody) and TtNUS SOP SA-6.3 provide a description of the chain-of-custody procedures followed during sampling activities. TtNUS SOP SA-6.3 may be reviewed upon request. A copy of the chain-of-custody documents and field notes are included in Appendix A.

3.6 QUALITY CONTROL SAMPLES

Groundwater and soil sampling activities were performed in accordance with the procedures prescribed in DEP-SOP-001/01. Groundwater and soil samples were collected in containers provided by the laboratory. Quality control samples (e.g. matrix spike duplicate, rinsate blanks and trip blanks) were collected and submitted to the laboratory.

Pre- and post-equipment rinsate blanks were collected during the soil and groundwater sampling events in accordance to FDEP SOP 001/01 FQ 1000: Field Quality Control Requirements (FDEP, 2008). Two quality control samples were collected during the Supplemental sampling event conducted in January. One trip blank sample, designated "Trip Blank" accompanied the cooler containing VOC samples. One duplicate sample was collected from monitoring well MW73 and was designated MW73-0109-D.

3.7 EQUIPMENT CALIBRATION

Field instruments, including the YSI 556 MPS Water Quality Meter and the Lamotte 2020e Turbidimeter, were calibrated daily according to FDEP SOPs Field Testing 1000: General Field Testing and Measurement, and manufacturer's specifications (FDEP, 2008). Equipment calibration was documented on an Equipment Calibration Log. A copy of the completed Equipment Calibration Log is included in Appendix A.

3.8 SOIL ASSESSMENT

The soil screening investigation conducted during the 2007 portion of the SARA III was limited to lithologic descriptions of drilling cores recorded during monitoring well installation. During drilling

operations continuous soil cores were recovered and soil samples from the cores were viewed and described by the on-site geologist. No soils were analyzed during the January 2009 field event.

3.8.1 Soil Lithologic Descriptions

Soil borings for the monitoring wells were advanced with a DPT rig. The soil borings were advanced continuously from ground surface to the water table at each soil boring location. The site geologist recorded the soil properties, including texture, color, and soil moisture for each soil boring and noted staining or odors. Soil boring logs are provided in Appendix A.

3.8.2 New Monitoring Well Locations

While conducting field activities during the 2007 field events, 16 shallow monitoring wells (MW61 through MW76) and 3 replacement wells (MW31R, MW46R and MW54R) were installed at the site. The wells were surveyed, and the top of casing for each well was recorded using the mean sea level as the datum. Data obtained during previous investigations, recommendations from FDEP, and current data obtained in the field, were evaluated to determine the locations of these new wells. The proposed location of the new wells, as shown on Figure 3-1, was presented in the Sampling and Analysis Plan (TtNUS, 2006). No monitoring wells have been installed since the 2007 field events.

3.8.3 Monitoring Well Installation

The micro monitoring wells were installed using a DPT rig and suitable tools. The initial 4 feet of each temporary well boring was advanced with a hand auger of suitable diameter in order to clear underground utilities that were not identified as part the utility clearance activities and to address concerns of cultural and sensitive historical areas. Each micro monitoring well boring was advanced to total depth using DPT casing. Total depth of each well boring was based on the depth to groundwater at the well location. The wells were installed to bracket the water table, which was anticipated to occur at approximately 8 to 10 feet bls.

The newly installed wells were constructed of new, plastic-wrapped well materials. Each well was constructed with 7/8 inch inside diameter (ID) schedule 40 polyvinyl chloride (PVC) well screen and riser. The well screens were 10 feet in length with factory machined 0.010 inch slots. Each well screen was prepacked with 20/30-grade silica sand. Excess riser was cut to fit within a flush mount 8 inch diameter protective manhole cover. A surface seal of sodium bentonite pellets and fine sand was emplaced above the well screen to prevent surface water from entering the well screen and each boring was grouted to land surface.

3.8.4 Monitoring Well Development

Each monitoring well was developed with a peristaltic pump and new surgical grade Teflon® lined disposable tubing. Each well was considered developed once the pH, temperature, and conductivity of the extracted groundwater stabilized and the groundwater was visibly clear (20 NTU or less). Development water from the site was stored in labeled 55-gallon drums for subsequent disposal.

3.8.5 Monitoring Well Sampling

Groundwater samples were collected using low-flow purging and sampling with a peristaltic pump and Teflon® tubing dedicated to each well. All groundwater samples were collected using the procedures specified in FDEP SOP FS 2200, Groundwater Sampling (FDEP, 2008).

Prior to groundwater sample collection, the monitoring wells were purged to remove stagnant water in the well casing. Both purging and sampling operations were conducted at a flow rate that resulted in a groundwater turbidity measurement of 20 NTU or less if possible in accordance with FDEP SOP FS 2200, Groundwater Sampling (FDEP, 2008) and the field parameter including pH, conductivity, and temperature were stabilized.

For non-VOC laboratory analysis, groundwater samples were collected using the peristaltic pump sterile Teflon and medical grade tubing. The sample aliquot for VOC analysis were collected last by slowly pulling the Teflon® tubing out of the well to minimize agitation of the water in the monitoring well and then transferring the contents of the tubing to a VOC vial. After collection, all samples were placed in a cooler with ice and shipped under chain-of-custody protocol to the fixed-base laboratory for analysis.

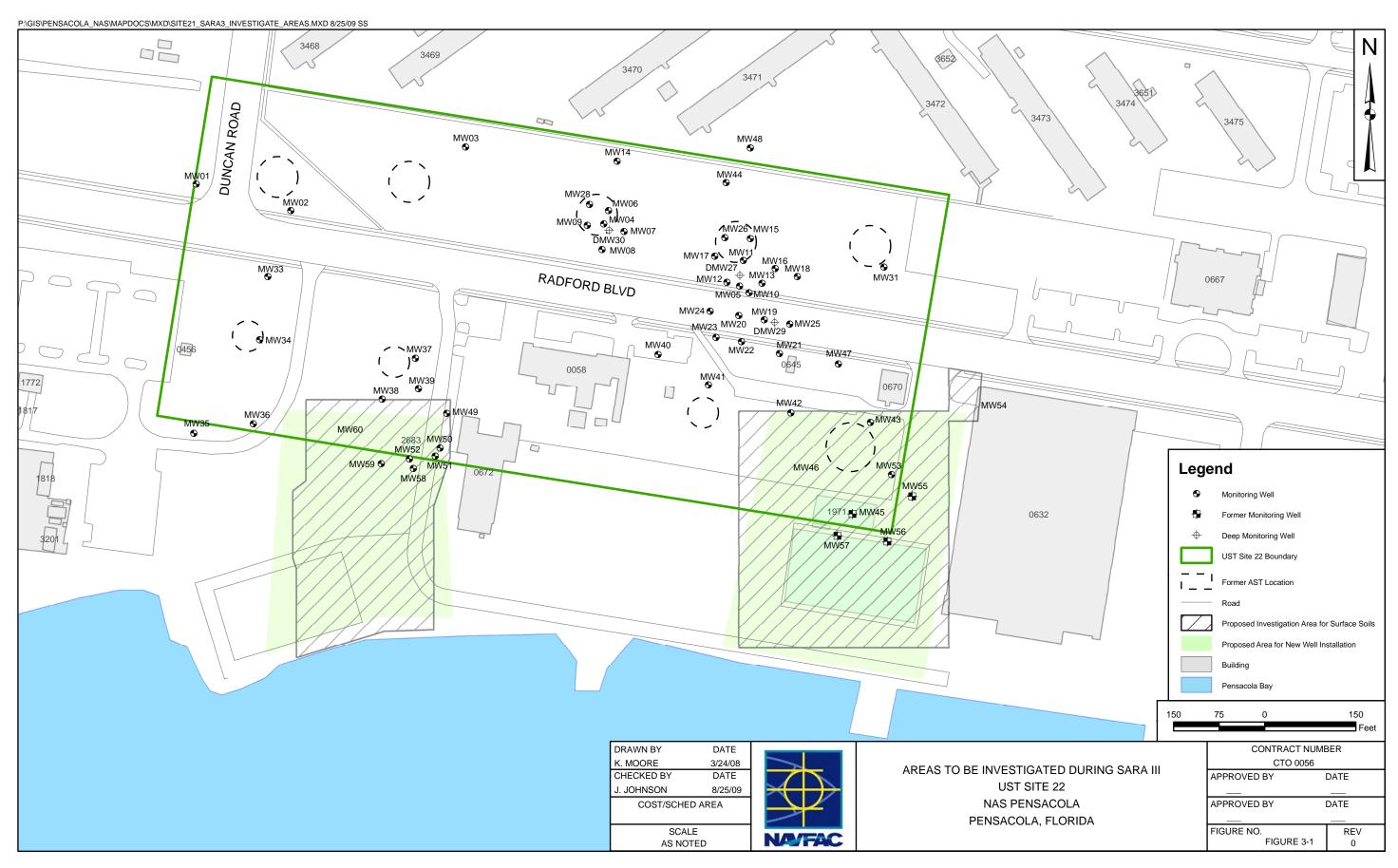
3.9 AQUIFER CHARACTERIZATION

Data were collected during the additional site investigation to evaluate the presence of contaminants and direction of groundwater movement. Groundwater elevations were determined from static water level (SWL) measurements and a well top-of-casing elevation survey, conducted by professional surveyors.

3.9.1 Static Water Level Measurements

A round of depth-to-groundwater measurements was made in all site monitoring wells available during May 2007 and January 2009. Groundwater elevations were calculated from the top of casing survey elevations and the SWL measurements. The groundwater isocontour maps are discussed in Section 4.3.1 and the recorded measurements are presented in Appendix A.

When the original wells were installed at Site 22, an arbitrary elevation was assigned to a utility location that was used as a benchmark for the survey. Subsequent wells were also surveyed using the arbitrary elevation. Casing elevations for wells installed during the 2007 event were surveyed in reference to North American Vertical Datum 1988 (NAVD). The elevation of preexisting monitoring well MW59 was also surveyed in reference to NAVD, and the resultant elevation differential was used to correct the casing elevations of the remaining pre-existing monitoring wells relative to NAVD.



TtNUS/TAL-09-078-1522-5.1 3-10 CTO 0056

4.0 SITE ASSESSMENT RESULTS

4.1 SOIL ASSESSMENT RESULTS

Interpretation of site lithology and stratigraphy was based on visual examination of soil cores collected from borings advanced during monitoring well installations. The recorded lithology was consistent with previous descriptions at the site (TtNUS, 2003). As part of recovery efforts following Hurricane Ivan, white fine grained sand was used as landscaping fill and occupies most of the surface soil. Underlying the fill sand, typical lithology consists of inter-bedded, various colored, silty clayey sands, silty sands, clayey silty sands, and silty sand.

The surficial geology of the area consists of Pleistocene marine deposits made up of light brown to tan, fine quartz sand with associated stringers and lenses of gravel and clay. Underlying these deposits, increasing with age, are the Citronelle Formation, the Miocene Coarse Clastics, the Pensacola Clay, the Tampa Formation, the Chickasawhay Limestone, the Bucatunna Clay member of the Byram Formation, the Ocala Group, the Lisbon equivalent, the Tallahatta Formation, and the Hatchetigbee Formation. The Pleistocene deposits and Citronelle formation are often impossible to differentiate, and together range in thickness from approximately 30 feet to 800 feet across the county (NEESA, 1983).

Based on the previous subsurface investigations conducted at NAS Pensacola, including Geraghty and Miller, Inc. (1986), and Ecology and Environment, Inc. (E&E, 1991) the stratigraphy from 0 to 100 feet bls at the facility consists of, in descending order:

- An approximately 50-feet thick upper unit comprised of fine to medium-grained quartz sand with abundant shell material and localized thin layers of silty clay.
- An approximately 15-feet thick, blue to green marine clay that is laterally persistent across the facility and serves as an aquitard, inhibiting groundwater movement between the units above and below it.
- An underlying unit comprised of a complex mosaic of fine to coarse marine and fluvial sands with localized marine and fluvial clays.

4.2 SOIL SAMPLING RESULTS

A total of 31 DPT subsurface soil samples were collected from the site. Using the DPT sampling techniques and the quick turn-around detections from the on-site laboratory, areas of soil contaminated with PAHs and TRPH could be more clearly defined. Only one sample, DP26S, located at the southwest portion of the site,

reported naphthalene at a concentration of 90 mg/kg in the on-site laboratory results. The residential SCTL for naphthalene is 55 mg/kg. However, the confirmatory results of DP26S from the off-site laboratory reported a concentration of 3.5 mg/kg, well below residential SCTLs. Laboratory analytical data is provided in Appendix B.

4.3 SITE HYDROGEOLOGY

Hydrogeologic data were collected during the additional site assessment to evaluate movement of groundwater in the shallow surficial aquifer at the site. Depth to groundwater and groundwater elevation were used to determine the groundwater flow direction at the site. According to the measurements recorded, the groundwater flow is to the southeast. However, due to the proximity of the Pensacola Bay, tidal influences and irrigation systems affect the site hydrogeology.

4.3.1 Static Water Level and Groundwater Elevations

On-site depth to water measurements and groundwater elevation determinations were recorded from site monitoring wells on May 2007 and January 2009. The depth to water measurement data and the relative elevations from the well top of casing survey were used to determine relative groundwater elevations at each monitoring well. The water level measurements are compiled and provided in Appendix A. Additionally the information available has been summarized and presented graphically on Figures 4-1 and 4-2. The isocontour map created with water level measurements taken in the summer of 2000, is presented on Figure 4-3, for reference.

4.4 GROUNDWATER ASSESSMENT RESULTS

In 2007, groundwater samples were collected from 23 existing monitoring wells, 3 replacement monitoring wells, and 16 newly installed monitoring wells (42 total samples). 2007 Groundwater results are presented in Table 4-1 and exceedances shown on Figure 4-4. Forty two groundwater samples were also collected during 2007 utilizing DPT. DPT groundwater exceedances are shown on Figure 4-5. During the supplemental sampling event conducted in January 2009, groundwater samples were collected from 17 monitoring wells. Groundwater results are presented in Table 4-2 and exceedances from the 2009 sampling event are shown on Figure 4-6.

4.4.1 2007 Existing Monitoring Well Groundwater Re-sampling Results

Twenty-three existing monitoring wells and three replacement monitoring wells were sampled for specific parameters based on previous investigations and FDEP comments. Due to the proximity to the Pensacola Bay, the groundwater is shallow and the groundwater depth is from less than 1 foot to just

over 3 feet bls. Existing wells had GCTL exceedances for lead, TRPH, xylenes, ethylbenzene, naphthalene, 1-methylnaphthalene and 2-methylnaphthalene, as well as exceedances of the NADC for lead. A summary of the groundwater sampling results for the 2007 field event is presented in Table 4-1. Validated laboratory data from the January 2009 yielded similar results (Table 4-2).

4.4.2 2007 New Monitoring Well Groundwater Sampling Results

Sixteen new micro wells were installed to further delineate the two southern areas. The new wells reported detections of lead, TRPH, xylenes, ethylbenzene, naphthalene, 1-methylnaphthalene and 2-methylnaphthalene exceeding GCTLs (Table 4-1).

Results obtained from the new monitoring wells reveal PAH and TRPH groundwater plumes in the southwest portion of the site. However, the concentrations detected are below the NADC criteria. Also, in the southeast area of the site, three samples reported ethylbenzene and total xylenes exceeding the GCTLs and one sample contained only ethylbenzene exceeding GCTLs. Only one monitoring well (MW73) was reported to contain ethylbenzene exceeding the NADC. It should also be noted that lead was detected in various samples exceeding the NADC (Figure 4-4).

4.4.3 <u>2007 DPT Groundwater Sample Results</u>

A total of 42 DPT groundwater samples were sent to the on-site mobile laboratory and 19 of those samples were sent to the off-site laboratory for confirmation. Lead and total xylenes were reported exceeding GCTLs, but they were less than NADCs values as shown on Figure 4-5

4.4.4 2009 Monitoring Well Groundwater Sample Results

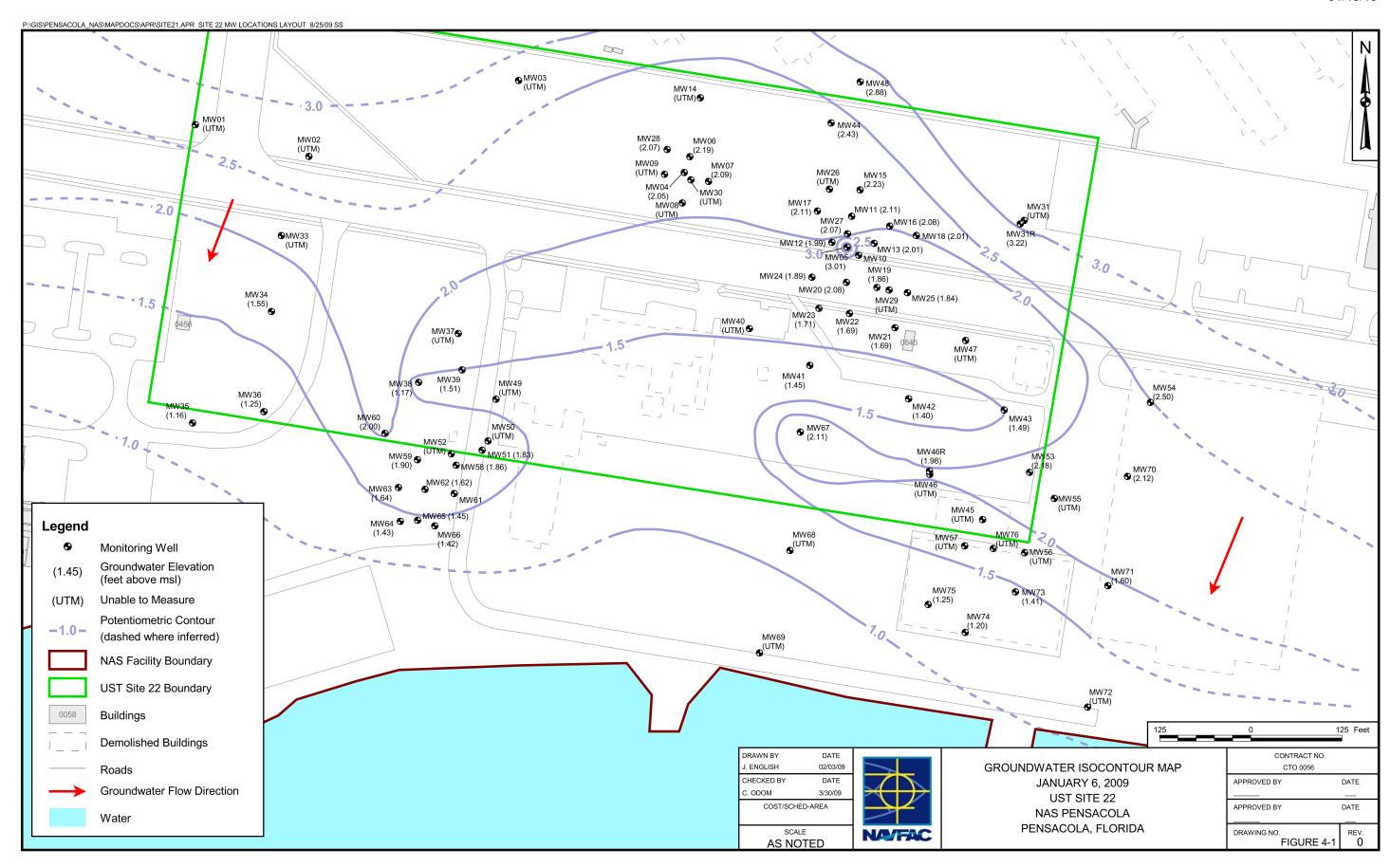
Seventeen monitoring wells were sampled during the January 2009 event. Lead, manganese, ethylbenzene, and xylene were detected at concentrations greater than their respective GCTLs. Lead was reported exceeding the NADC concentration in one location. Groundwater analytical results are presented in Table 4-2. Exceedances from the groundwater sampling event are shown on Figure 4-6.

4.4.5 Lead in Groundwater

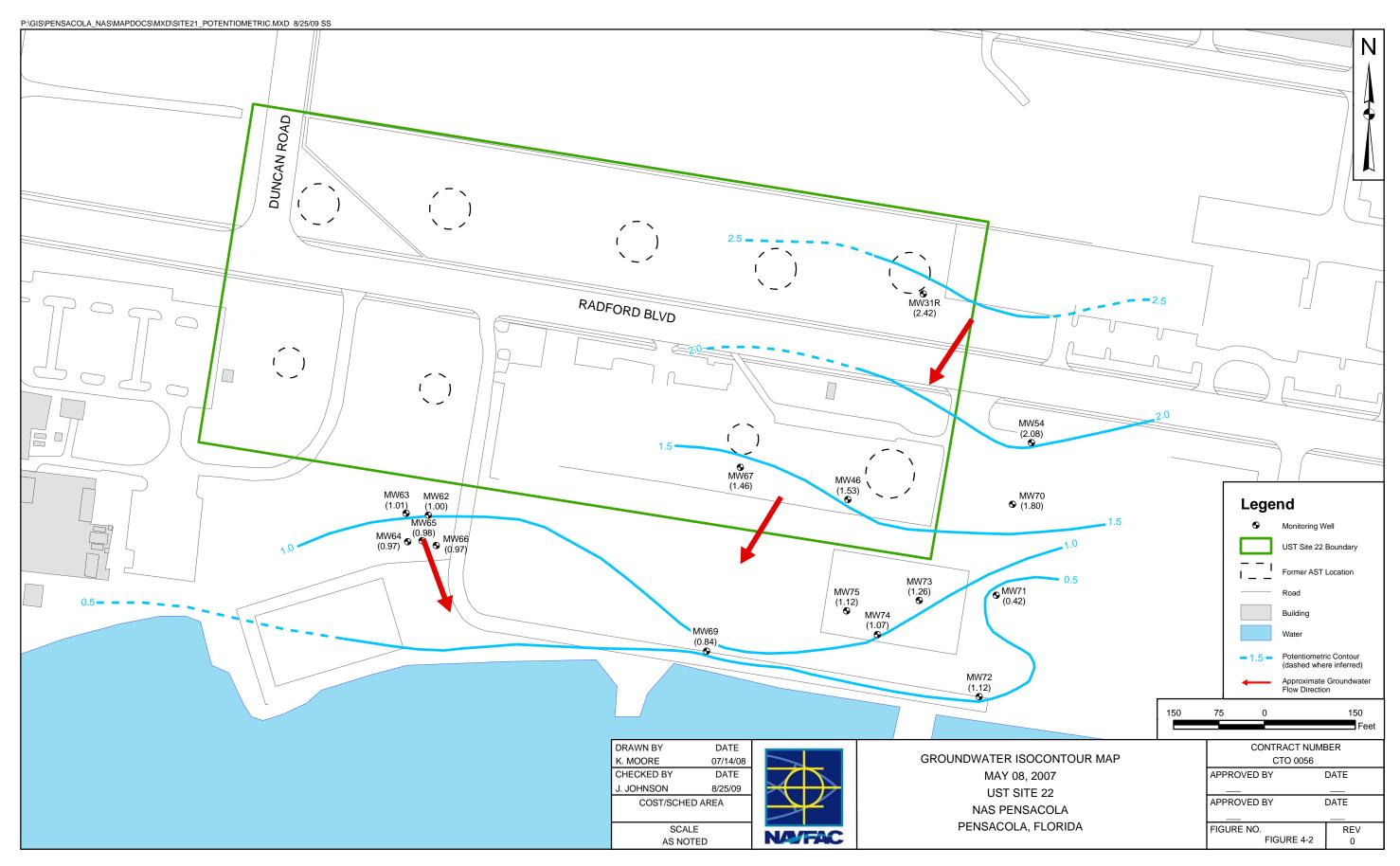
A comparison was made with the groundwater sample results for lead from this and previous investigations. A summary of the results is shown in Table 4-3. According to the comparison, there is neither an apparent trend nor pattern. Also, due to the inconsistency in detections, it was theorized that

there could be an external source, not related to the site's historical use, affecting the area; thereby affecting the reported concentrations for lead.

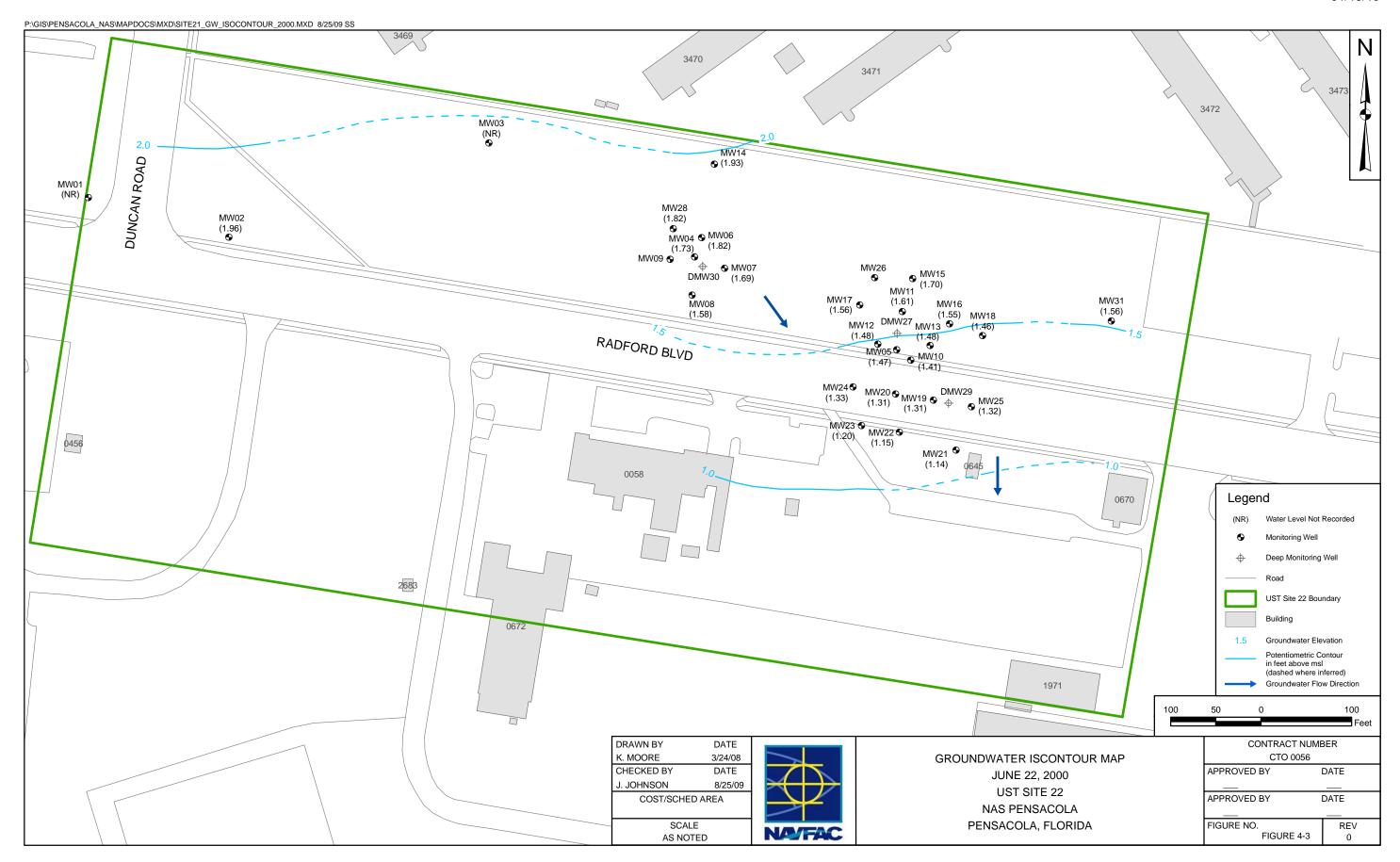
Results from the groundwater sampling for lead and VOCs conducted in January 2009 are presented on Figure 4-6. These results of the lead analysis were used in a lead population study to determine if the lead in the groundwater was naturally occurring or anthropogenic. Using statistical analysis to compare the distribution and concentration of lead occurrences at Site 22, it was determined that the lead at the site was not naturally occurring. However, the study did not reveal any pattern to the lead exceedances. This fact leads to the conclusion that there appears to be no significant continuing source of lead at the site. The lead population analysis and graphs are located in Appendix C.



TtNUS/TAL-09-078-1522-5.1 4-5 CTO 0056



TtNUS/TAL-09-078-1522-5.1 4-6 CTO 0056



TtNUS/TAL-09-078-1522-5.1 4-7 CTO 0056

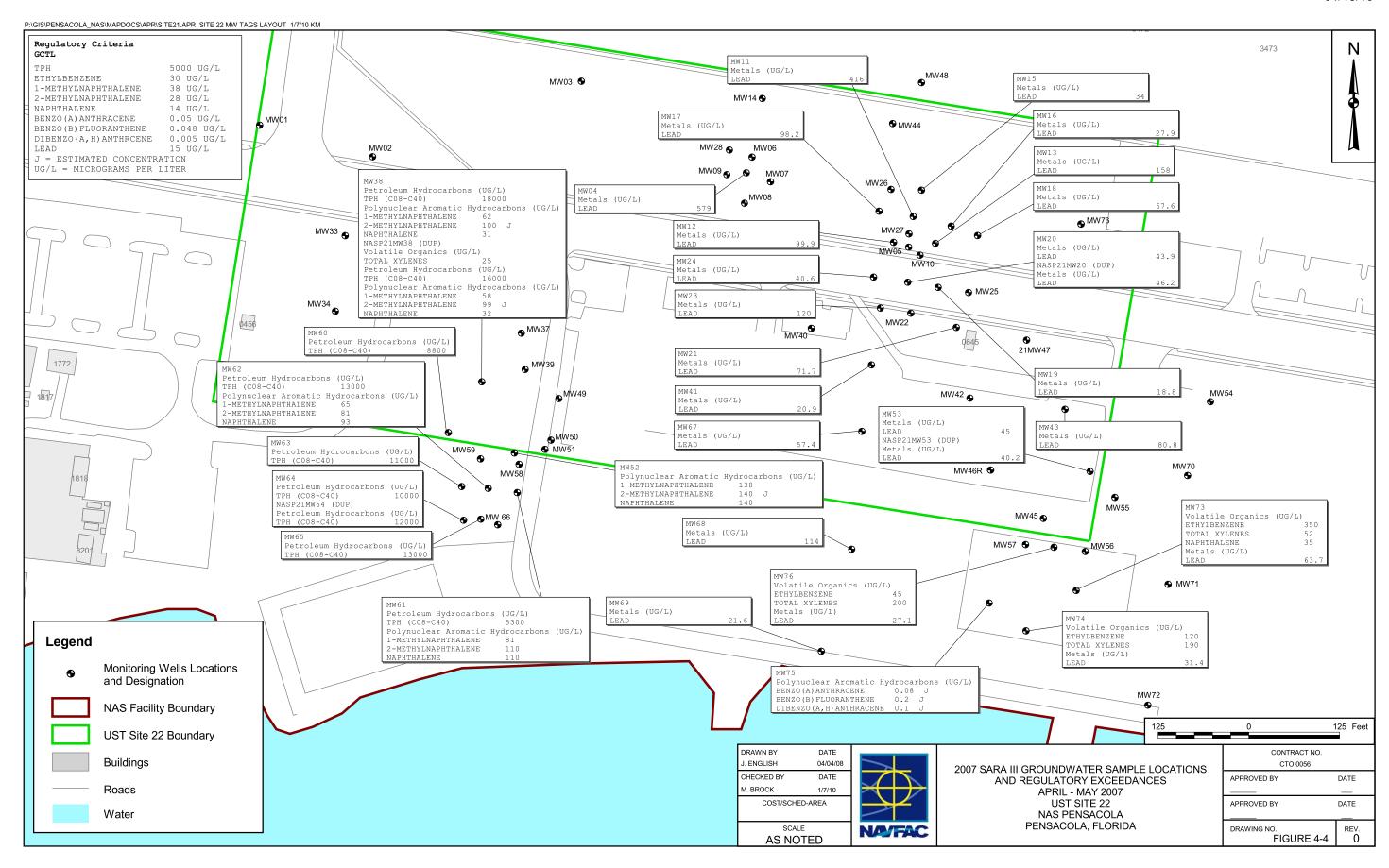


TABLE 4-1 SUMMARY OF 2007 SARA III GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 1 OF 9

Sample Location Collect Date	GCTL ⁽¹⁾ (µg/L)	Attenuation Default Source Criteria ⁽⁶⁾ (ug/L)	MW04 5/8/2007	MW11 5/7/2007	MW12 5/7/2007	MW13 5/7/2007	MW15 5/7/2007
Analyte (CAS #)							
/olatile (2) (ug/L)							
Benzene (71-43-2)	1	100	NA	NA	NA	NA	NA
Γoluene (108-88-3)	40	400	NA	NA	NA	NA	NA
Ethylbenzene (100-41-4)	30	300	NA	NA	NA	NA	NA
Kylenes (1330-20-7)	20	200	NA	NA	NA	NA	NA
Polycyclic Aromatic Hydrocarbons (3)) (ug/L)						
Acenaphthene (83-32-9)	20	200	NA	NA	NA	NA	NA
Acenaphthylene (208-96-8)	210	2,100	NA	NA	NA	NA	NA
Benzo (a) Anthracene (56-55-3)	0.05	5	0.07 U				
Benzo (b) Fluoranthene(205-99-2)	0.05	5	0.08 U				
Dibenzo (a, h) Anthracene(53-70-3)	0.005	0.5	0.1 U				
Fluoranthene (206-44-0)	280	2,800	NA	NA	NA	NA	NA
Fluorene (86-73-7)	280	2,800	NA	NA	NA	NA	NA
1-Methylnaphthalene (90-12-0)	28	280	NA	NA	NA	NA	NA
2-Methylnaphthalene (91-57-6)	28	280	NA	NA	NA	NA	NA
Naphthalene (91-20-3)	14	140	NA	NA	NA	NA	NA
Phenanthrene (85-01-8)	210	2,100	NA	NA	NA	NA	NA
Pyrene (129-00-0)	210	2,100	NA	NA	NA	NA	NA
Fotal Recoverable Petroleum Hydroc	arbons ⁽⁴⁾ (µg/L)						
,	5,000	50,000	NA	NA	NA	NA	NA
Metals ⁽⁵⁾ (ug/L)							
_ead (7439-92-1)	15	150	579	416	99.9	158	34

Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

Bold indicates exceedance of regulatory limits.

NA = location not analyzed for this parameter J = analyte detected at an estimated concentration

⁶ Natural Attenuation Default Source Criteria as provide in Chapter 62-777, F.A.C.

 $^{^2}$ SW-846 8260B, 3 SW-846 8310, 4 FL-PRO, 5 SW-846 6010B \qquad U = analyte not detected above laboratory method detection limit

TABLE 4-1 SUMMARY OF 2007 SARA III GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 2 OF 9

Natural NASP21G	W1602 NASP21GW1702	NASP21GW1802	NASP21GW1902	NASP21GW2002
tenuation MW1	6 MW17	MW18	MW19	MW20
ault Source eria ⁽⁶⁾ (ug/L)	07 5/7/2007	5/7/2007	5/9/2007	5/9/2007
ria ' (ug/L)				
100 NA	NA	NA	NA	NA
400 NA	NA	NA	NA	NA
300 NA	NA	NA	NA	NA
200 NA	NA	NA	NA	NA
200 NA	NA	NA	NA	NA
2,100 NA	NA	NA	NA	NA
5 0.07	U 0.07 U	0.07 U	0.07 U	0.07 U
5 0.08	U 0.08 U	0.08 U	0.08 U	0.08 U
0.5 0.1 l	J 0.1 U	0.1 U	0.1 U	0.1 U
2,800 NA	NA	NA	NA	NA
2,800 NA	NA	NA	NA	NA
280 NA	NA	NA	NA	NA
280 NA	NA	NA	NA	NA
140 NA	NA	NA	NA	NA
2,100 NA	NA	NA	NA	NA
2,100 NA	NA	NA	NA	NA
50,000 NA	NA	NA	NA	NA
150 27.9	98.2	67.6	18.8	43.9
	150 27.9	150 27.9 98.2	150 27.9 98.2 67.6	150 27.9 98.2 67.6 18.8

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

U = analyte not detected above laboratory method detection limit

Bold indicates exceedance of regulatory limits. NA = location not analyzed for this parameter

J = analyte detected at an estimated concentration

⁶ Natural Attenuation Default Source Criteria as provide in Chapter 62-777, F.A.C.

² SW-846 8260B, ³ SW-846 8310, ⁴ FL-PRO, ⁵ SW-846 6010B

TABLE 4-1 SUMMARY OF 2007 SARA III GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 3 OF 9

Sample Location		Natural	NASP21GW2002D	NASP21GW2102	NASP21GW2302	NASP21GW2402	NASP21GW2502
	GCTL (1)	Attenuation	MW20 (duplicate)	MW21	MW23	MW24	MW25
Collect Date	(µg/L)	Default Source	5/9/2007	5/7/2007	5/7/2007	5/9/2007	5/9/2007
		Criteria ⁽⁶⁾ (ug/L)					
Analyte (CAS #)							
Volatile ⁽²⁾ (ug/L)							
Benzene (71-43-2)	1	100	NA	NA	NA	NA	NA
Toluene (108-88-3)	40	400	NA	NA	NA	NA	NA
Ethylbenzene (100-41-4)	30	300	NA	NA	NA	NA	NA
Xylenes (1330-20-7)	20	200	NA	NA	NA	NA	NA
Polycyclic Aromatic Hydrocarbons (3)	(ug/L)						
Acenaphthene (83-32-9)	20	200	NA	NA	NA	NA	NA
Acenaphthylene (208-96-8)	210	2,100	NA	NA	NA	NA	NA
Benzo (a) Anthracene (56-55-3)	0.05	5	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Benzo (b) Fluoranthene(205-99-2)	0.05	5	0.08 U	0.08 U	0.08 U	0.08 U	U 80.0
Dibenzo (a, h) Anthracene(53-70-3)	0.005	0.5	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Fluoranthene (206-44-0)	280	2,800	NA	NA	NA	NA	NA
Fluorene (86-73-7)	280	2,800	NA	NA	NA	NA	NA
1-Methylnaphthalene (90-12-0)	28	280	NA	NA	NA	NA	NA
2-Methylnaphthalene (91-57-6)	28	280	NA	NA	NA	NA	NA
Naphthalene (91-20-3)	14	140	NA	NA	NA	NA	NA
Phenanthrene (85-01-8)	210	2,100	NA	NA	NA	NA	NA
Pyrene (129-00-0)	210	2,100	NA	NA	NA	NA	NA
Total Recoverable Petroleum Hydroca	arbons ⁽⁴⁾ (µg/L)						
	5,000	50,000	NA	NA	NA	NA	NA
Metals ⁽⁵⁾ (ug/L)							
Lead (7439-92-1)	15	150	46.2	71.7	120	40.6	10.8

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

Bold indicates exceedance of regulatory limits.

NA = location not analyzed for this parameter J = analyte detected at an estimated concentration

⁶ Natural Attenuation Default Source Criteria as provide in Chapter 62-777, F.A.C.

² SW-846 8260B, ³ SW-846 8310, ⁴ FL-PRO, ⁵ SW-846 6010B U = analyte not detected above laboratory method detection limit

TABLE 4-1 SUMMARY OF 2007 SARA III GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 4 OF 9

Sample No. Sample Location Collect Date	GCTL ⁽¹⁾ (µg/L)	Natural Attenuation Default Source Criteria ⁽⁶⁾ (ug/L)	NASP21GW31R01 MW31R 5/10/2007	NASP21GW3802 MW38 5/10/2007	NASP21GW3802D MW38 (duplicate) 5/10/2007	NASP21GW4102 MW41 5/7/2007	NASP21GW4202 MW42 5/7/2007
Analyte (CAS #)							
Volatile (2) (ug/L)				0.511			
Benzene (71-43-2)	1	100	NA	0.5 U	0.5 U	NA	NA
Toluene (108-88-3)	40	400	NA	0.4 U	0.4 U	NA	NA
Ethylbenzene (100-41-4)	30	300	NA	2 J	4 J	NA	NA
Xylenes (1330-20-7)	20	200	NA	19	25	NA	NA
Polycyclic Aromatic Hydrocarbons (3)	(ug/L)						
Acenaphthene (83-32-9)	20	200	NA	1	1	NA	NA
Acenaphthylene (208-96-8)	210	2,100	NA	0.06 U	0.06 U	NA	NA
Benzo (a) Anthracene (56-55-3)	0.05	5	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Benzo (b) Fluoranthene(205-99-2)	0.05	5	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Dibenzo (a, h) Anthracene(53-70-3)	0.005	0.5	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Fluoranthene (206-44-0)	280	2,800	NA	0.06 U	0.06 U	NA	NA
Fluorene (86-73-7)	280	2,800	NA	0.09 J	0.6	NA	NA
1-Methylnaphthalene (90-12-0)	28	280	NA	62	58	NA	NA
2-Methylnaphthalene (91-57-6)	28	280	NA	100 J	99 J	NA	NA
Naphthalene (91-20-3)	14	140	NA	31	32	NA	NA
Phenanthrene (85-01-8)	210	2,100	NA	0.05 U	0.05 U	NA	NA
Pyrene (129-00-0)	210	2,100	NA	0.06 U	0.06 U	NA	NA
Total Recoverable Petroleum Hydroc	arbons ⁽⁴⁾ (ug/L)						
,	5,000	50,000	NA	18,000	16,000	NA	NA
Metals ⁽⁵⁾ (ug/L)							
Lead (7439-92-1)	15	150	5.7 J	NS	NS	20.9	9.1

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

Bold indicates exceedance of regulatory limits. NA = location not analyzed for this parameter

J = analyte detected at an estimated concentration

⁶ Natural Attenuation Default Source Criteria as provide in Chapter 62-777, F.A.C.

² SW-846 8260B, ³ SW-846 8310, ⁴ FL-PRO, ⁵ SW-846 6010B

U = analyte not detected above laboratory method detection limit

TABLE 4-1 SUMMARY OF 2007 SARA III GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 5 OF 9

()	20 210 0.05	100 400 300 200 200 2,100 5	1 0.4 U 0.3 U 1 U 0.2 J 0.06 U 0.07 U	NA NA NA NA NA	0.5 U 0.4 U 0.3 U 1 U 0.4 0.06 U	0.5 U 0.4 U 0.3 U 1 U	0.5 U 0.4 U 0.3 U 1 U
Benzene (71-43-2) Toluene (108-88-3) Ethylbenzene (100-41-4) Xylenes (1330-20-7) Polycyclic Aromatic Hydrocarbons (3) (ug/L Acenaphthene (83-32-9) Acenaphthylene (208-96-8) Benzo (a) Anthracene (56-55-3) Benzo (b) Fluoranthene (205-99-2) Dibenzo (a, h) Anthracene (53-70-3) Fluoranthene (206-44-0)	40 30 20 L) 20 210 0.05	400 300 200 200 2,100	0.4 U 0.3 U 1 U 0.2 J 0.06 U	NA NA NA	0.4 U 0.3 U 1 U	0.4 U 0.3 U 1 U 0.07 U	0.4 U 0.3 U 1 U
Toluene (108-88-3) Ethylbenzene (100-41-4) Xylenes (1330-20-7) Polycyclic Aromatic Hydrocarbons (3) (ug/L Acenaphthene (83-32-9) Acenaphthylene (208-96-8) Benzo (a) Anthracene (56-55-3) Benzo (b) Fluoranthene (205-99-2) Dibenzo (a, h) Anthracene (53-70-3) Fluoranthene (206-44-0)	40 30 20 L) 20 210 0.05	400 300 200 200 2,100	0.4 U 0.3 U 1 U 0.2 J 0.06 U	NA NA NA	0.4 U 0.3 U 1 U	0.4 U 0.3 U 1 U 0.07 U	0.4 U 0.3 U 1 U
Ethylbenzene (100-41-4) Xylenes (1330-20-7) Polycyclic Aromatic Hydrocarbons (3) (ug/L Acenaphthene (83-32-9) Acenaphthylene (208-96-8) Benzo (a) Anthracene (56-55-3) Benzo (b) Fluoranthene (205-99-2) Dibenzo (a, h) Anthracene (53-70-3) Fluoranthene (206-44-0)	30 20 L) 20 210 0.05	300 200 200 2,100	0.3 U 1 U 0.2 J 0.06 U	NA NA NA	0.3 U 1 U	0.3 U 1 U 0.07 U	0.3 U 1 U
Xylenes (1330-20-7) Polycyclic Aromatic Hydrocarbons ⁽³⁾ (ug/L) Acenaphthene (83-32-9) Acenaphthylene (208-96-8) Benzo (a) Anthracene (56-55-3) Benzo (b) Fluoranthene (205-99-2) Dibenzo (a, h) Anthracene (53-70-3) Fluoranthene (206-44-0)	20 L) 20 210 0.05	200 200 2,100	1 U 0.2 J 0.06 U	NA NA	1 U	1 U 0.07 U	1 U
Polycyclic Aromatic Hydrocarbons (3) (ug/L) Acenaphthene (83-32-9) Acenaphthylene (208-96-8) Benzo (a) Anthracene (56-55-3) Benzo (b) Fluoranthene (205-99-2) Dibenzo (a, h) Anthracene (53-70-3) Fluoranthene (206-44-0)	L) 20 210 0.05	200 2,100	0.2 J 0.06 U	NA	0.4	0.07 U	
Acenaphthene (83-32-9) Acenaphthylene (208-96-8) Benzo (a) Anthracene (56-55-3) Benzo (b) Fluoranthene (205-99-2) Dibenzo (a, h) Anthracene (53-70-3) Fluoranthene (206-44-0)	20 210 0.05	2,100	0.06 U				1
Acenaphthylene (208-96-8) Benzo (a) Anthracene (56-55-3) Benzo (b) Fluoranthene(205-99-2) Dibenzo (a, h) Anthracene(53-70-3) Fluoranthene (206-44-0)	210 0.05	2,100	0.06 U				1
Benzo (a) Anthracene (56-55-3) Benzo (b) Fluoranthene(205-99-2) Dibenzo (a, h) Anthracene(53-70-3) Fluoranthene (206-44-0)	0.05			NA	0.06 U	0.0011	
Benzo (b) Fluoranthene(205-99-2) Dibenzo (a, h) Anthracene(53-70-3) Fluoranthene (206-44-0)		5	0.0711		0.00	0.06 U	0.06 U
Dibenzo (a, h) Anthracene(53-70-3) Fluoranthene (206-44-0)	0.05		0.07 0	0.07 U	0.07 U	0.07 U	0.07 U
Fluoranthene (206-44-0)	0.05	5	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
,	0.005	0.5	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Fluorene (86-73-7)	280	2,800	0.06 U	NA	0.06 U	0.06 U	0.06 U
	280	2,800	0.2 J	NA	0.1 J	0.07 U	0.7
1-Methylnaphthalene (90-12-0)	28	280	4	NA	0.4	1	130
2-Methylnaphthalene (91-57-6)	28	280	0.07 U	NA	0.2 J	1	140 J
Naphthalene (91-20-3)	14	140	0.3	NA	0.4	0.5	140
Phenanthrene (85-01-8)	210	2,100	0.05 U	NA	0.06 J	0.05 U	0.05 U
Pyrene (129-00-0)	210	2,100	0.06 U	NA	0.06 U	0.06 U	0.06 U
Total Recoverable Petroleum Hydrocarbon	ns ⁽⁴⁾ (µg/L)						
, and the second	5,000	50,000	3,100	NA	2,100	290 J	3,100
Metals ⁽⁵⁾ (ug/L)							
Lead (7439-92-1)	15	150	80.8	7.9	14.2	NS	NS

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

Bold indicates exceedance of regulatory limits. NA = location not analyzed for this parameter

J = analyte detected at an estimated concentration

⁶ Natural Attenuation Default Source Criteria as provide in Chapter 62-777, F.A.C.

² SW-846 8260B, ³ SW-846 8310, ⁴ FL-PRO, ⁵ SW-846 6010B

U = analyte not detected above laboratory method detection limit

TABLE 4-1 SUMMARY OF 2007 SARA III GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 6 OF 9

Sample No. Sample Location Collect Date	GCTL ⁽¹⁾ (µg/L)	Natural Attenuation Default Source Criteria ⁽⁶⁾ (ug/L)	NASP21GW5302 MW53 5/9/2007	NASP21GW5302D MW53 (duplicate) 5/9/2007	NASP21GW5401 MW54 5/10/2007	NASP21GW6001 MW60 5/8/2007	NASP21GW6101 MW61 5/8/2007
Analyte (CAS #)							
Volatile (2) (ug/L)							
Benzene (71-43-2)	1	100	0.5 U	0.5 U	NA	0.5 U	0.5 U
Toluene (108-88-3)	40	400	0.4 U	0.4 U	NA	0.4 U	0.4 U
Ethylbenzene (100-41-4)	30	300	0.3 U	0.3 U	NA	0.3 U	0.3 U
Xylenes (1330-20-7)	20	200	8	9	NA	1 U	1 U
Polycyclic Aromatic Hydrocarbons (3)	(ug/L)						
Acenaphthene (83-32-9)	20	200	0.2 J	0.2 J	NA	0.4	0.6
Acenaphthylene (208-96-8)	210	2,100	0.06 U	0.06 U	NA	2	0.06 U
Benzo (a) Anthracene (56-55-3)	0.05	5	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Benzo (b) Fluoranthene(205-99-2)	0.05	5	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Dibenzo (a, h) Anthracene(53-70-3)	0.005	0.5	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Fluoranthene (206-44-0)	280	2,800	0.06 U	0.06 U	NA	0.06 U	0.06 U
Fluorene (86-73-7)	280	2,800	0.2 J	0.1 J	NA	1	0.4
1-Methylnaphthalene (90-12-0)	28	280	2	2	NA	18	81
2-Methylnaphthalene (91-57-6)	28	280	2 J	2 J	NA	22	110
Naphthalene (91-20-3)	14	140	1	1	NA	4	110
Phenanthrene (85-01-8)	210	2,100	0.05 U	0.05 U	NA	0.05 U	0.05 U
Pyrene (129-00-0)	210	2,100	0.06 U	0.06 U	NA	0.06 U	0.06 U
Total Recoverable Petroleum Hydroca	arbons ⁽⁴⁾ (µg/L)						
	5,000	50,000	1,000	950	NA	8,800	5,300
Metals ⁽⁵⁾ (ug/L)							
Lead (7439-92-1)	15	150	45	40.2	1.8 U	NS	NS

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

Bold indicates exceedance of regulatory limits.

NA = location not analyzed for this parameter J = analyte detected at an estimated concentration

⁶ Natural Attenuation Default Source Criteria as provide in Chapter 62-777, F.A.C.

² SW-846 8260B, ³ SW-846 8310, ⁴ FL-PRO, ⁵ SW-846 6010B U = analyte not detected above laboratory method detection limit

TABLE 4-1 SUMMARY OF 2007 SARA III GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 7 OF 9

Sample No. Sample Location Collect Date	GCTL ⁽¹⁾ (µg/L)	Natural Attenuation Default Source Criteria ⁽⁶⁾ (ug/L)	NASP21GW6201 MW62 5/8/2007	NASP21GW6301 MW63 5/8/2007	NASP21GW6401 MW64 5/8/2007	NASP21GW6401D MW64 (duplicate) 5/8/2007	NASP21GW6501 MW65 5/8/2007
Analyte (CAS #) Volatile ⁽²⁾ (ug/L)							
Benzene (71-43-2)	1	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene (108-88-3)	40	400	0.5 U 0.4 U	0.5 U 0.4 U	0.5 U 0.4 U	0.5 U 0.4 U	0.5 U 0.4 U
Ethylbenzene (100-41-4)	30	300	0.4 0	0.4 U	0.4 U 0.3 U	0.4 U	0.4 U 0.8 J
Xylenes (1330-20-7)	20	200	13	1 U	1 U	1 U	1 J
Polycyclic Aromatic Hydrocarbons (3)	(ug/L)						
Acenaphthene (83-32-9)	20	200	0.5	0.5	0.3	0.3	0.4
Acenaphthylene (208-96-8)	210	2,100	0.06 U	0.06 U	0.06 U	0.06 U	0.4
Benzo (a) Anthracene (56-55-3)	0.05	5	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Benzo (b) Fluoranthene(205-99-2)	0.05	5	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Dibenzo (a, h) Anthracene(53-70-3)	0.005	0.5	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Fluoranthene (206-44-0)	280	2,800	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Fluorene (86-73-7)	280	2,800	0.5	0.5	0.4	0.4	0.6
1-Methylnaphthalene (90-12-0)	28	280	65	6	7	7	16
2-Methylnaphthalene (91-57-6)	28	280	81	5	11	10	16
Naphthalene (91-20-3)	14	140	93	0.9	1	0.9	8
Phenanthrene (85-01-8)	210	2,100	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Pyrene (129-00-0)	210	2,100	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Total Recoverable Petroleum Hydroca	arbons ⁽⁴⁾ (µg/L)						
	5,000	50,000	13,000	11,000	10,000	12,000	13,000
Metals ⁽⁵⁾ (ug/L)							
Lead (7439-92-1)	15	150	NS	NS	NS	NS	NS

Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

NA = location not analyzed for this parameter

J = analyte detected at an estimated concentration

⁶ Natural Attenuation Default Source Criteria as provide in Chapter 62-777, F.A.C.

² SW-846 8260B, ³ SW-846 8310, ⁴ FL-PRO, ⁵ SW-846 6010B U = analyte not detected above laboratory method detection limit **Bold** indicates exceedance of regulatory limits.

TABLE 4-1 SUMMARY OF 2007 SARA III GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 8 OF 9

Analyte (CAS #) Volatile (2) (ug/L) Benzene (71-43-2) Toluene (108-88-3) Ethylbenzene (100-41-4) Xylenes (1330-20-7) Polycyclic Aromatic Hydrocarbons (3) (ug/l) Acenaphthene (83-32-9) Acenaphthylene (208-96-8) Benzo (a) Anthracene (56-55-3)	1 40 30 20 /L) 20 210 0.05	100 400 300 200 200 2,100	0.5 U 0.4 U 0.3 U 1 U 0.2 J 0.06 U	NA NA NA NA	NA NA NA NA	NA NA NA NA	NA NA NA NA
Benzene (71-43-2) Toluene (108-88-3) Ethylbenzene (100-41-4) Xylenes (1330-20-7) Polycyclic Aromatic Hydrocarbons (3) (ug/l) Acenaphthene (83-32-9) Acenaphthylene (208-96-8)	40 30 20 /L) 20 210	400 300 200 200	0.4 U 0.3 U 1 U	NA NA NA	NA NA NA	NA NA NA	NA NA NA
Toluene (108-88-3) Ethylbenzene (100-41-4) Xylenes (1330-20-7) Polycyclic Aromatic Hydrocarbons (3) (ug/l) Acenaphthene (83-32-9) Acenaphthylene (208-96-8)	40 30 20 /L) 20 210	400 300 200 200	0.4 U 0.3 U 1 U	NA NA NA	NA NA NA	NA NA NA	NA NA NA
Ethylbenzene (100-41-4) Xylenes (1330-20-7) Polycyclic Aromatic Hydrocarbons (3) (ug/l) Acenaphthene (83-32-9) Acenaphthylene (208-96-8)	30 20 /L) 20 210	300 200 200	0.3 U 1 U 0.2 J	NA NA NA	NA NA	NA NA	NA NA
Xylenes (1330-20-7) Polycyclic Aromatic Hydrocarbons (3) (ug/l) Acenaphthene (83-32-9) Acenaphthylene (208-96-8)	20 <u>/L)</u> 20 210	200	1 U 0.2 J	NA NA	NA NA	NA NA	NA
Polycyclic Aromatic Hydrocarbons (3) (ug/l Acenaphthene (83-32-9) Acenaphthylene (208-96-8)	/L) 20 210	200	0.2 J	NA	NA	NA	
Acenaphthene (83-32-9) Acenaphthylene (208-96-8)	20 210						NA
Acenaphthylene (208-96-8)	210						NA
, , , ,		2,100	0.06 U				
Benzo (a) Anthracene (56-55-3)	0.05			NA	NA	NA	NA
	0.00	5	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Benzo (b) Fluoranthene(205-99-2)	0.05	5	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Dibenzo (a, h) Anthracene(53-70-3)	0.005	0.5	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Fluoranthene (206-44-0)	280	2,800	0.06 U	NA	NA	NA	NA
Fluorene (86-73-7)	280	2,800	0.1 J	NA	NA	NA	NA
1-Methylnaphthalene (90-12-0)	28	280	0.2 U	NA	NA	NA	NA
2-Methylnaphthalene (91-57-6)	28	280	0.3	NA	NA	NA	NA
Naphthalene (91-20-3)	14	140	0.1 J	NA	NA	NA	NA
Phenanthrene (85-01-8)	210	2,100	0.2	NA	NA	NA	NA
Pyrene (129-00-0)	210	2,100	0.06 U	NA	NA	NA	NA
Total Recoverable Petroleum Hydrocarbo	ons ⁽⁴⁾ (µg/L)						
	5,000	50,000	400	NA	NA	NA	NA
Metals ⁽⁵⁾ (ug/L)							
Lead (7439-92-1)	15	150	NS	57.4	114	21.6	1 U

¹ Groundwater Cleanup Criteria as provided in Chapter 62-777,F.A.C.

Bold indicates exceedance of regulatory limits.

NA = location not analyzed for this parameter

J = analyte detected at an estimated concentration

⁶ Natural Attenuation Default Source Criteria as provide in Chapter 62-777, F.A.C.

² SW-846 8260B, ³ SW-846 8310, ⁴ FL-PRO, ⁵ SW-846 6010B U = analyte not detected above laboratory method detection limit

TABLE 4-1 SUMMARY OF 2007 SARA III GROUNDWATER ANALYTICAL RESULTS SITE 22 NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA PAGE 9 OF 9

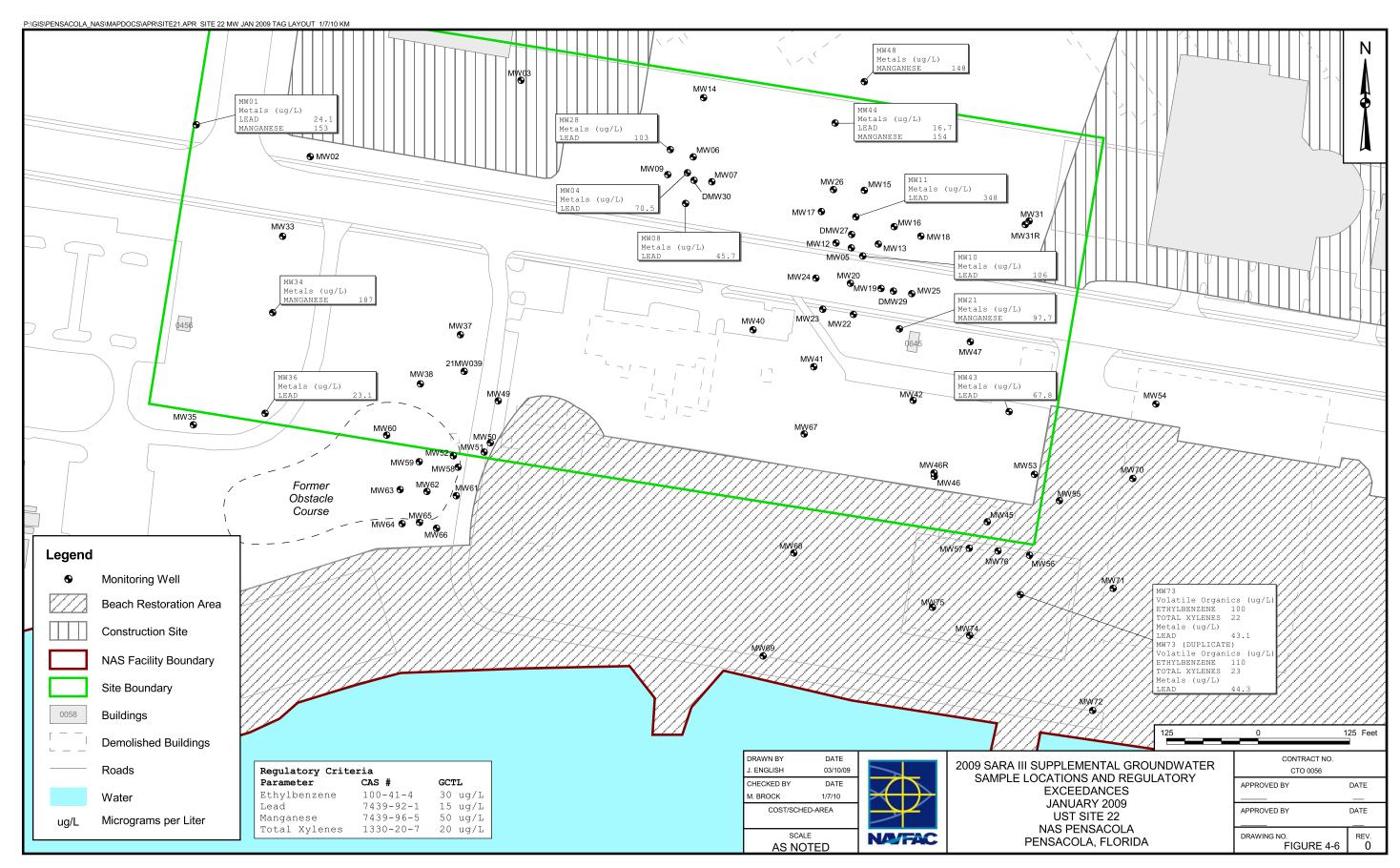
Sample No.		Natural	NASP21GW7101	NASP21GW7201	NASP21GW7301	NASP21GW7401	NASP21GW7501	NASP21GW7601		
Sample Location	GCTL (1)	Attenuation	MW71	MW72	MW73	MW74	MW75	MW76		
Collect Date	(µg/L)	Default Source	5/9/2007	5/9/2007	5/10/2007	5/10/2007	5/10/2007	5/10/2007		
00001 24.0		Criteria ⁽⁶⁾ (ug/L)	0,0,200.	0,0,200.	0,10,2001	5, 15,255	G/ 16/2007	G/ 16/2007		
Analyte (CAS #)										
Volatile (2) (ug/L)										
Benzene (71-43-2)	1	100	NA	NA	0.5 U	0.5 U	0.5 U	0.5 U		
Toluene (108-88-3)	40	400	NA	NA	3	6	0.4 U	12		
Ethylbenzene (100-41-4)	30	300	NA	NA	350	120	6	45		
Xylenes (1330-20-7)	20	200	NA	NA	52	190	10	200		
Polycyclic Aromatic Hydrocarbons (3)	(ug/L)									
Acenaphthene (83-32-9)	20	200	NA	NA	0.1 J	0.07 U	0.2	0.07 U		
Acenaphthylene (208-96-8)	210	2,100	NA	NA	0.06 U	0.06 U	0.06 U	0.06 U		
Benzo (a) Anthracene (56-55-3)	0.05	5	0.07 U	0.07 U	0.07 U	0.07 U	0.08 J	0.07 U		
Benzo (b) Fluoranthene(205-99-2)	0.05	5	0.08 U	0.08 U	0.08 U	0.08 U	0.2 J	0.08 U		
Dibenzo (a, h) Anthracene(53-70-3)	0.005	1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 J	0.1 U		
Fluoranthene (206-44-0)	280	2,800	NA	NA	0.08 J	0.1 J	0.06 U	0.06 U		
Fluorene (86-73-7)	280	2,800	NA	NA	0.07 U	0.07 U	0.1 J	0.07 U		
1-Methylnaphthalene (90-12-0)	28	280	NA	NA	4	3	0.5	2		
2-Methylnaphthalene (91-57-6)	28	280	NA	NA	6	4	0.6	3		
Naphthalene (91-20-3)	14	140	NA	NA	35	10	8	9		
Phenanthrene (85-01-8)	210	2,100	NA	NA	0.05 U	0.1 J	0.05 U	0.05 U		
Pyrene (129-00-0)	210	2,100	NA	NA	0.09 J	0.1 J	0.06 U	0.06 U		
Total Recoverable Petroleum Hydrocarbons ⁽⁴⁾ (μg/L)										
	5,000	50,000	NA	NA	2,300	2,300	1,400	3,700		
Metals ⁽⁵⁾ (ug/L)										
Lead (7439-92-1)	15	150	2.2 U	6.3	63.7	31.4	8.5	27.1		

Groundwater Cleanup Criteria as provided in Chapter 62-777, F.A.C. ⁶ Natural Attenuation Default Source Criteria as provide in Chapter 62-777, F.A.C.

Bold indicates exceedance of regulatory limits.

NA = location not analyzed for this parameter J = analyte detected at an estimated concentration

 $^{^2}$ SW-846 8260B, 3 SW-846 8310, 4 FL-PRO, 5 SW-846 6010B U = analyte not detected above laboratory method detection limit



TtNUS/TAL-09-078-1522-5.1 4-19 CTO 0056

TABLE 4-2 SUMMARY OF 2009 SARA III SUPPLEMENT GROUNDWATER ANALYTICAL RESULTS UST SITE 22 NAVAL AIR STATION PENSACOLA

NAVAL AIR STATION PENSACOLA PENSACOLA, FLORIDA

		Well Number	MW01	MW04	MW08	MW10	MW11	MW21
		Sample Date	1/8/2009	1/7/2009	1/7/2009	1/7/2009	1/7/2009	1/7/2009
		Sample ID	NASP21-MW01-0109	NASP21-MW04-0109	NASP21-MW08-0109	NASP21-MW10-0109	NASP21-MW11-0109	NASP21-MW21-0109
Analyte (CAS #) Metals ⁽³⁾ (μg/L)	FDEP GCTLs ⁽¹⁾ (ua/L)	FDEP NADC ⁽²⁾ (μg/L)						
Lead (7439-92-1)	15	150	24.1	70.5	45.7	106	348	7.5
Manganese (7439-96-5)	50	500	153	8	11.6	2 U	6.1	97.7
Zinc (7440-66-6)	5,000	50,000	28.3	88.9	951	175	423	15.4 U
Volatile Organic Compoun		200	NC	NC	NO	NO	NG	NC
Ethylbenzene (100-41-4)	30	300	NS	NS	NS	NS	NS	NS
Total Xylenes (1330-20-7)	20	200	NS	NS	NS	NS	NS	NS

		Well Number	MW28	MW34	MW36	MW39	MW43	MW44
		Sample Date	1/7/2009	1/7/2009	1/7/2009	1/7/2009	1/7/2009	1/7/2009
		Sample ID	NASP21-MW28-0109	NASP21-MW34-0109	NASP21-MW36-0109	NASP21-MW39-0109	NASP21-MW43-0109	NASP21-MW44-010
	FDEP	FDEP NADC						
Analyte (CAS #)	GCTLs (1)	⁽²⁾ (µg/L)						
Metals (3) (µg/L)								
Lead (7439-92-1)	15	150	103	2.5 U	23.1	10.4	67.8	16.7
Manganese (7439-96-5)	50	500	21.8	187	20.2	2 U	9.8	154
Zinc (7440-66-6)	5,000	50,000	153	90.5	144	13.1 U	5.9 U	57.3
Volatile Organic Compour	nds ⁽⁴⁾ (µg/L)							
Ethylbenzene (100-41-4)	30	300	NS	NS	NS	NS	NS	NS
Total Xylenes (1330-20-7)	20	200	NS	NS	NS	NS	NS	NS
				1	1	1		

		Well Number	MW46R	MW48	MW61	MW69	MW73	MW73 (duplicate)
		Sample Date	1/8/2009	1/7/2009	1/7/2009	1/7/2009	1/8/2009	1/8/2009
		Sample ID	NASP21-MW46R-0109	NASP21-MW48-0109	NASP21-MW61-0109	NASP21-MW69-0109	NASP21-MW73-0109	NASP21-MW73-0109-D
	FDEP	FDEP NADC						
Analyte (CAS #)	GCTLs (1)	⁽²⁾ (µg/L)						
Metals (3) (µg/L)								
Lead (7439-92-1)	15	150	5.7	9.7	5.8	10.2	43.1	44.3
Manganese (7439-96-5)	50	500	14.6	148	29.5	5.1	3.9	4.1
Zinc (7440-66-6)	5,000	50,000	19	22.6	7.5 U	115	3.3 U	3.1 U
Volatile Organic Compounds ⁽⁴⁾ (μg/L)								
Ethylbenzene (100-41-4)	30	300	NS	NS	NS	NS	100	110
Total Xylenes (1330-20-7)	20	200	NS	NS	NS	NS	22	23

Notes

U = analyte was not detected above laboratory method detection limit

NS = location was not sampled for this analyte

GCTL = Groundwater Cleanup Target Level

FDEP = Florida Department of Environmental Protection

NADC = Natural Attenuation Default concentrations

Values in **bold** indicate an exceedance of regulatory criteria

 $^{\rm (1)}$ As provided in Chapter 62-770 F.A.C.

 $^{(2)}$ As provided in Chapter 62-777 Table V $\,$ F.A.C.

⁽³⁾ SW-846 6010B

⁽⁴⁾ SW-846 8260B

TABLE 4-3 SUMMARY OF HISTORICAL LEAD ANALYTICAL RESULTS UST SITE 22

NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

		Lead Cor	ad Concentrations in Groundwater (μg/L)				
Well ID	Apr-97	Jun-00	Feb-03	Dec-04	Mar-05	May-07	Jan-09
MW01	4						24.1
MW02	220	1.6 U/1.6 U					
MW03	4						
MW04	8	18.2			119	579	70.5
MW05	43	24.4					
MW06	3 U	1.6 U					
MW07	93	8.2/10.7					
MW08	4	2.9					45.7
MW09	16						
MW10	27	51.2		27.4			106
MW11	42	152		769		416	348
MW12	34	31.8		61.7		99.9	
MW13	35	25.6		210		158	
MW14	3 U						
MW15	34	17.8		82.9		34	
MW16	77	14.1		74.9		27.9	
MW17	23	12.3		133		98.2	
MW18	16	3.5			1110	67.6	
MW19	26	18.4		10.0		18.8	
MW20	10			7.2		43.9/46.2	
MW21	5	10.6		29.9		71.7	7.5
MW22	13	14					
MW23	11	88.4		81.4		120	
MW24	7	8.6		24.3		40.6	
MW25	6	12.6		22.1		10.8	
MW26							
MW27							
MW28		1.6 U					103
MW29		1.6 U					
MW30		1.6 U					
MW31					5.7		
MW31R						5.7 J	
MW33							
MW34							2.5 U
MW35							
MW36							23.1
MW37							
MW38							
MW39							10.4
MW40			5.1			9.1	
MW41			6.5			20.9	

	Lead Concentrations in Groundwater (μg/L)									
Well ID	Apr-97	Jun-00	Feb-03	Dec-04	Mar-05	May-07	Jan-09			
MW42	7451 01	oun oo	3.3 U/4.1 U	B00 04	mar cc	9.1	oun oo			
MW43			22.9	60.8/63.4		80.8	67.8			
MW44			5.0	7.2/7.1		7.9	16.7			
MW45				113						
MW46				9.3						
MW46R						14.2	5.7			
MW47				27.8						
MW48				3.0			9.7			
MW49										
MW50										
MW51										
MW52										
MW53						45				
MW54					23.4	1.8 U				
MW55					3.8					
MW56					66.6/60.6	200				
MW57					34.8					
MW58										
MW59										
MW60										
MW61							5.8			
MW62										
MW63										
MW64										
MW65										
MW66										
MW67						57.4				
MW68						114				
MW69						21.6	10.2			
MW70						1 U				
MW71						2.2 U				
MW72						6.3				
MW73						63.7	43.1/44.3			
MW74						31.4				
MW75						8.5				
MW76						27.1				
Bold = ex	Bold = exceedance of Florida Groundwater Cleanup Target Level of 15 μg/L									

or the Natural Attenuation Default Source Criteria (NADSC) of 150 μg/L

U = analyte not detected above laboratory method detection limit

= estimated value two values in one square indicate duplicate sample

Shaded square = not sampled during that specific event

5.0 CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations below are separated into three groups: conclusions of the first SARA completed in January 2001 (TtNUS, 2001); conclusions as a result of the SARA No. 2 completed in 2003 (TtNUS, 2003); and conclusions of the additional assessment and the results from the sampling events conducted in May 2007, as well as the supplemental event conducted in January 2009.

5.1 SARA I CONCLUSIONS AND RECOMMENDATIONS

The purpose of SARA I was to address CAR comments from the FDEP. The FDEP requested the following:

- Further delineation of the horizontal extent by installing wells 50 feet northwest of MW11 and 50 feet northwest of MW04.
- Delineate the vertical extent by installing one intermediate monitoring well between MW05 and MW11, one close to MW19 and one adjacent to MW04 at around 30 to 35 feet bls.
- Further assess lead in groundwater.
- Install a monitoring well 60 feet southeast of southeast parking lot, near the area where free product was observed.
- Record water table measurements before each sample.
- Surface and subsurface samples should be taken in areas where monitoring wells had exceedances.

Based on the data reported from the SARA I investigation:

- No free-phase petroleum hydrocarbons were detected in any of the monitoring wells.
- Fifteen (15) hand auger soil borings were completed to the water table to assess the extent of soil
 contamination. Confirmation soil samples collected from three soil borings contained TRPH
 concentrations exceeding FDEP SCTL for direct exposure residential area [460 milligrams per
 kilogram (mg/kg)] and leachability to groundwater (340 mg/kg).
- Benzo(a)pyrene was detected in one subsurface soil sample at a concentration of 0.309 mg/kg, which exceeds the SCTL for direct exposure (residential area), but was below the SCTL for leachability to groundwater. Direct exposure is not a significant concern because of the sample collection depth (3.5 feet bls). All other detected PAHs were below the applicable SCTLs.

- Copper and lead were detected in a single on-site soil sample at concentrations exceeding the
 applicable FDEP SCTLs. The concentrations of copper and lead in the sample exceeded the direct
 exposure (residential area) SCTLs. These samples were collected from 5 feet bls; therefore, direct
 exposure is not a significant concern.
- Total xylenes was the only VOC detected in groundwater samples at a concentration exceeding the FDEP GCTL. The compound was detected in a single monitoring well (MW05) at a concentration (23 μg/L) exceeding the FDEPs GCTL of 20 μg/L.
- TRPH was detected in groundwater samples from two monitoring wells (MW05 at 6,800 µg/L and MW19 at 7,120 µg/L) at concentrations exceeding the FDEP GCTL of 5,000 µg/L.
- Lead was detected at concentrations exceeding the FDEP GCTL (15 μg/L) in samples collected from nine monitoring wells MW04 (18.2 μg/L), MW05 (24.4 μg/L), MW10 (51.2 μg/L), MW11 (152 μg/L), MW12 (31.8 μg/L), MW13 (25.6 μg/L), MW15 (17.8 μg/L), MW19 (18.4 μg/L), and MW23 (88.4 μg/L).
- The absence of detected analytes in the groundwater sample from deep monitoring well DMW29 and the limited detection of an analyte in deep monitoring well DMW30 define the vertical extent of the groundwater contamination at the site.
- The average groundwater horizontal hydraulic gradient of the site is 0.0021 feet per foot. The average groundwater vertical gradient was upward at 0.0015 feet per foot and the estimated average hydraulic conductivity at the site is 5.2587 X 10⁻⁵ feet per second.
- The theoretical groundwater seepage (linear) velocity is calculated to be approximately 2,321 feet per year. When natural retarding processes are taken into considered using a retardation factor in the velocity equation, the estimated groundwater seepage velocity is approximately 13 feet per year.

5.2 SARA II CONCLUSIONS AND RECOMMENDATIONS

The purpose of the SARA II was to address the comments from the FDEP to the SARA I. The conclusions were as follows:

- Field headspace screening results indicate that petroleum impact to soil has occurred at the western
 end of the site, south of Radford Boulevard. Because headspace screening detections are limited to
 samples collected from intervals immediately above the water table, the soil contamination in this area
 most likely resulted from groundwater level fluctuations over time producing a smear zone of soil
 exposed to contaminated groundwater.
- Fixed-base laboratory analyses indicated that TRPH concentrations were above the residential and leachability SCTLs. Because soil samples collected were from the intervals immediately above the water table, the TRPH concentrations most likely represent groundwater impact to the smear zone or

capillary fringe, and may not be due to contamination of vadose zone soil. Three soil samples from this area were submitted for soil precipitation leaching procedure (SPLP) extraction and TRPH analysis. TRPH was below the laboratory detection limits in the three samples extracted and analyzed. Groundwater samples collected from the monitoring wells installed in this area had TRPH concentrations below the GCTL for TRPH.

- Two surface soil samples collected south of Building 670 had PAH detections at concentrations exceeding SCTLs. The surface soil sample from SB29 had five PAH compounds exceeding the SCTLs. Soil boring SB29 was the western-most boring advanced in this area during the SAR addendum investigation. Lead and copper concentrations in the soil samples collected during this investigation were below the SCTLs.
- The extent of the dissolved lead groundwater plume reported from previous investigations at the eastern end of the site appears to be delineated. Previous work at the site and results from the most recent investigation indicate that this plume originates north of Radford Boulevard and extends south to the former location of Building 645. The lead GCTL exceedance detected in MW43 appears to be separate from the original lead plume and may originate from a different release.

5.3 SARA III CONCLUSIONS AND RECOMMENDATIONS

Following the conclusions and recommendations from SARA II, a Triad approach was used to better define the contamination in soil and groundwater at the site. Extensive soil and groundwater sampling has been conducted throughout the history of investigation at Site 22, as seen on Figure 5-1. A schematic illustrating the areas that have reported high detections of contaminants throughout the history of the investigation at Site 22 is shown on Figure 5-2.

In accordance with the conclusions in the SARA I, SARA II and with the results of the investigations from SARA III, TtNUS recommends that a RAP be completed to address the TRPH contaminated soils and groundwater at UST Site 22. In addition to the proposed RAP, confirmatory groundwater sampling should be completed to verify the reported high concentrations of ethylbenzene and inconsistencies between lead concentrations in groundwater, and confirmatory soil sampling should be conducted around DP26S due to high detections of PAHs prior to remedial plan design.

Inorganic petroleum constituents comprise two separate plumes of groundwater exceeding the GCTL across the southern portion of the site. The plumes appear to originate from two former AST locations. The delineated plumes cover approximately two acres in total area. Monitoring only is recommended for these locations since exposure is unlikely and due to the delicate nature of the restored landscape in those areas.

Results of the supplemental sampling event conclude that the lead in groundwater is not naturally occurring. Furthermore, there is not a continuing source, as evidenced by the fact that there is not a defined pattern to the lead exceedances at the site. Exceedances of the GCTLs for lead and manganese were encountered during the study. Also, there was an exceedance of the NADC criteria for lead at monitoring well MW11, a monitoring well located at the edge or immediately downgradient of a former AST. TtNUS recommends groundwater monitoring only. However, due to the erratic nature of the lead exceedances, the number of monitoring locations should be increased to include all on-site monitoring wells for at least one event. This has not previously occurred and would give an overall representation of lead concentrations in groundwater across the site. Further monitoring could be adjusted based on results of this event. In addition, an upgradient monitoring well should be designated as a site—specific background location for comparison of future groundwater sampling events.

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APPENDIX A

2009 FIELD DATA SHEETS

Page Z of Z **BORING LOG** BORING No.: NASP21 PPO)
DATE: 4-30-07 Site 21 112600583 PROJECT NAME: PROJECT NUMBER: PROJECT NUMBER: 112600585

DRILLING COMPANY: M&W Dolling GEOLOGIST: -J.D. Spalding 6610DTGeoProbe. **DRILLING RIG:** DRILLER: Dave MATERIAL DESCRIPTION PID/FID Reading (ppm) Sample Lithology Sample Depth Blows / U No. (Ft.) 6" or Recovery Change S Soil Density/ and RQD (Depth/Ft.) Borehole** Driller BZ** Consistency С Type or Run (%) Sample Remarks Color **Material Classification** S RQD Length Screened OF Rock Interval Hardness 1042 Surface Sand 1211 DP015 4-5' 3'FF 354 DP01S 6-7 1 <u>5</u>£}. 5F3 5-7 feet Soil Sampl 又 ~7.55よ. S DPOIN-#-1120 Pulled water Sample Sample 10-12 DP01-10-12 H20 Sample

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		_	 	1			consolidated ceddish	<u> </u>			\dashv	-	-
							brown clayey sand	4					
							, ,					.	
							2-5' white ytz					Ì	
				1			2 3 White DIE	\vdash			\dashv		
<u> </u>		-		soil			5 an a					-	\dashv
ldash		<u> </u>		1 .					DP115-5-6-			_	
				sample			Saturation @ 6.5° 5-10° gray etz Sand						
							5-10' aca, at						
				1			1 1 1 1 1 2					寸	\neg
				11 0			Jan a		N. N	\dashv		┥	\dashv
				ltg0					DP11W 10-12-			_	
				Samples	:								
			1	1							1	\dashv	\neg
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		/ 	-							\dashv	-		
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1				~									
]							寸	寸	
				1	-		J. W. **				\dashv	$\neg \dagger$	
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	ļ	<u>/_</u> ,		1		ļ						\perp	
						L					_	_]	
		-	er rock bro						_				
			ng in 6 foo	ot intervals (@ borehole. I	ncrease	reading frequency if elevated reponse r	ead.	Drillin				
ĸem	arks:								Background	(ppn	n): [
_							N						_
Conv	ertec	I to We	ell:	Yes			No Well I.D). #: _.					

Tŧ.	Tetra	Tech NUS,	inc.
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Page ___ of ___

		NAME NUME	E: BER:	Nasp 1126	Site 2 0058	<u>21</u> 3	BORING N DATE:	0.:	NASP21 DP2 5-3-07 J.D. Spalding	_/				
			PANY:	M31	W Drilli	ñÇ	GEOLOGIS	ST:	J.D. Spalding					
DRIL	LING	RIG:		66			DRILLER:		Dave Duncan	,			_	Fic
Sample	Depth	Blows /	Sample	Lithology	N.	ATE	RIAL DESCRIPTION			PID/FI	D Rea	ding ((ppm)	110
No. and Type or RQD	(Ft.) or	6" or RQD (%)	Recovery / Sample Length	Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	U S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**	
							7-8"Brown fine							1.8
							Bieticsand							- 8, 2
							2" Ton Gray Med fine							
														2.1
		//				_	Brown Tan Mad Sand W/B	ita	e Mad.	_			Ц,	14,2
		-		1:02					DDAIC/ F-IA				F	F, It,
		$\overline{}$		sample			Dhyrox med fine sand -lighteray mod fine San	<u> </u>	BP21565-10					225
	0.	-		Samp			Transacy Mad sine san	┢	Strong Petroleur Smellin last	-	Н		'	F,/f Z./
				1					257 -					۲۰۱
				1			Sameasabove						\blacksquare	
				1					DECOMB BLAD	,				
		/							¥12,554					
				1120					DP21W 13-15					
		<u>/</u>		Sample									_	
		/						-					4	
		-									-	\dashv	_	
		-		l								\dashv	-	
			<u> </u>	1								_	-	
				1							\dashv	\neg		
										П		T	ヿ	
** Inclu		itor readir	-	ot intervals (_		reading frequency if elevated reponse r	ead.	Drillin Background					
C	ortod	to We	11.	Yes			No Well I.D	#.					_	

		J NAME	Ξ:	IUS, Inc	21	BC	BORING N		P site 21 Pag DP 22			of _	
		NUMI		11260 M+	0583	· 11 °	DATE: GEOLOGI	ст٠	5-3-07	4			
		RIG:	AIII.	66	$\frac{W}{10}$; 11; i	DRILLER:	J1.	DP 22 5-3-07 JN Spalds Dave	ng			
						IATE	RIAL DESCRIPTION			PID/FI		iding ((ppm)
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	U S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
							0-6" grayish brown poorly consolidated gtz sand						
				soil			6"-2" t. tan					72	
				soil			2-3 gravich brown otz sand		DP225 5.5-1				
							saturation of 7	/	DP225 6-7	51			
				H20 Sample			3'- Mg gray gtz sand		NP22W-13-15	\			
								;					
										-			
							1.						
												$\frac{1}{1}$	
** Inclu Rem	de mor arks:	nitor readi		t intervals () borehole. I		reading frequency if elevated reponse i		Drillin Background				
Conv	ertec	to We	ell:	Yes		•	No Well I.D). #:	24				

PRO. DRIL	PROJECT NAME: PROJECT NUMBER: DRILLING COMPANY: DRILLING RIG:				BORING LOG Site 21 BORING No.: 1 23 112 (2005 23) DATE: 5-3-07 GEOLOGIST: 1 10 5 par 6610 NT DRILLER: Dave								ge of					
Sample No. and Type or RQD	(Ft.)	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	RIAL DESCRIP		U S C S *	Remarks	Sample Sample							
	-						0-2' 4 qt2 sand 2'-5.5' 1	bcown										
	15			soil sample			and gray sand saturation	Q 6-		DP235 5-6			z .					
				420			5.5 - 10° etz sana	gray 1		DP23W 14-18								
				Sample														
** Inclu Rem	de mor arks:	nitor readi		t intervals (g borehole. I		e reading frequency if e	elevated reponse r		Drillin Background								

PRO DRIL DRIL	JECT LING LING	NUME COMF RIG:	BER: PANY:	112 M+ 6610	<i>y y 1</i>		BORING I DATE: GEOLOGI DRILLER:	IST:	DP 24 5-4-07 J D Spald Dave	ing			
Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval		Color	RIAL DESCRIPTION	U S C S *			D Rea		
							0-6" black asphalt		ke:				
			ļ	5011			["-=1 11 1		01245-5-6'				
				Sample			gtz sand saturation @ 6.5' 7'-10' gray sand						
				H ₂ 0			7'-10' gray sand		DP24W-15-17		\prod	300	F
	- ;			samples				1	01- (W 1- 1/				
												à	
	1		7										
	r;												
Y													1
						ı		,13		3			ě
			1			ř		٨	4/5				-
					E4						i I		i

* When rock coring, enter rock ** Include monitor reading in 6		ole. Increase reading frequen	ncy if elevated reponse read.	Drilling Area
Remarks:			A	Background (ppm):
emarks:			(I) (II) (II) (II) (II) (II) (II) (II)	
Converted to Well:	Yes	No	Well I.D. #:	

-st

Tetra Tech	NUS, Inc.
PROJECT NAME:	Site
PROJECT NUMBER:	12/60

Page ___ of __

		J				R	DRING LOG		21				
PRO	JECT	NAME	Ξ :	Site	21		BORING N	lo.:	NASP B DP2	5			
PRO	JECT	NUM	BER:	1126	0058	3	DATE:		5-4-07				
DRIL	LING	COM	PANY:	W4 N	لنالك	واكناا	GEOLOGI	ST:	5-4-07 JD Spaldin	<u>19</u>			
DRIL	LING	RIG:		661	21 005 3 V 005		DRILLER:		Nave.	ر <u>—</u>			
		_				IATE	RIAL DESCRIPTION	\prod		PID/FI	D Rea	ding	(ppm
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soli Density/ Consistency or Rock Hardness		Material Classification	U S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
							0-6" It. brown						
							gtz sand						
		\angle	,				L						
							6"-4.5" It. brow	n			Ш		
							and It. gray						
匚		/_					gtz sand						
		/					<i>V</i>				Ц		L
<u> </u>		<u>/</u>					4.5'-4.7' black	sh			Ш		L
_		/		50:1			orange clayer sand w/petro		DP255-4.5-0	<u></u>			
		/_	-	samples			sand W/ petro						_
		/_					odos			Ш			<u> </u>
		/_											
		<u>/</u> ,		5011			4.7-7.5 It.		OP255-6-7.5				
		/	ļ	sample			gray gtz sand						_
				-			W/ petro odor		A 0 0 - 11 / 11				_
<u> </u>		$/\!\!-\!\!\!\!-$		H ₂ O					DP25W-14-	18			<u> </u>
				samples			7.5-10 gray	-			 	_	<u> </u>
				?			gtz sand	-					<u> </u>
\vdash				-				<u> </u>			\vdash		<u> </u>
				-									
				-									
 			_	_									_
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			-	-			. '	_			\vdash		
* Whe	rock c	oring ent	er rock bro	okanase									
** Inclu	ıde mor	itor readi			@ borehole.	increase	e reading frequency if elevated reponse	read.	Drillin				
Kem	arks:				· · · · · · · · · · · · · · · · · · ·				Background	(ppr	n): [
Con	verted	to We	:: :::	Yes		-	No Well I.D). #:					_

Tt.	Tetra Tech NUS, Inc.
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Page <u>_____</u> of ____

PRO	JECT	NAME	:: :::::::::::::::::::::::::::::::::::	5.te	21		BORING N	lo.:	VASP 22 DP2	6			
DRII	IING		DEK. DANV:	1126	00583		DATE:	ςт.	<u>5-4-07</u>	—			
DRII	LING	RIG.	AIT.	<u> </u>	00583 W Dr.11. ODT	7	DDII I ED:	31.	J.D. Spalding Dave Duncan	₹—	—		
	LIIVO	INO.							Dave Duncan				_
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness		RIAL DESCRIPTION Material Classification	U S C S	Remarks	Sample Sample	`		
				۲, ۲			0-6" 150 Ton	_					
		-		- ` `			0-6" ight Brown Ton Med fine at Z Sand	\vdash		$\vdash\vdash$	Н		-
				٠. ()-		-		⊢			Н		L
		/_		~ "			GILY highgray Medfine aTZ Gand.				Ш		L
				21525			4-5 Lightgray Sandw)				Ш		
							Fe Stainna/4"Fe Rich Med	Sar	d. DP26545-6				
				35.5			4-5 Leght grey Sandw/ Fe Staining/H"Fe Rich Med Durk Brown Muddy San	d	> ?Smear Zoize				
				sample			To grey med Sand-						
							mad-medfine great		1		П	à.	
				soulle			atz Gend Strong Petrol	F4	DP2656-R		П		
				sample			Smell				П		
				H, 0					DP26W-13-15			1	
				sam ples					_ · _ / / / · / · · · · · · · · · · · · · · · · · · ·				
	,												
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										\dashv	ヿ		_
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										\neg	十		
										十	十	\dashv	_
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		$\overline{}$								-	\dashv	_	
\vdash		\leftarrow						-		\dashv	\dashv	_	\dashv
				<u>. </u>			X				丄		
	de mon		er rock bro		borehole. I	ncrease	reading frequency if elevated reponse i	ead.	Drilling Background (
Conv	erted	to We	ll:	Yes			No Well I.D	. #:					

DRIL	LING	J	≣: BER:	S; te 11260 M t	21 005 83 W 00 0 OT	:11: ₁	DRING LOG BORING N DATE: GEOLOGI: DRILLER:	ሪ <i>የ</i> lo.: ST:	site 21 Df 33 5-5-07 J 1 Spal Dave		9		
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness		RIAL DESCRIPTION Material Classification	U S C S *	Remarks	Sample Sample	Sampler BZ		Driller BZ**
							0-3- White			1			Г
				, ±		,	to It tan fine						
			-	,			etz sand			$oxed{oxed}$			
				-			<u>L</u>						
L		\angle				980	3"- 2' brown			4 1995			
<u> </u>							to It brown		DP335-5-	6			
<u> </u>		/					fine gtz. sand			\bot	Ш		_
_		<u> </u>				_				\bot	Ш		_
<u> </u>				-			2'- 65.5' H. tan			+	<u> </u>		
				· · · ·	<u> </u>	_	and It. gray			_	H		
			-		\		fine atz sand	_		+	Н		-
-					 	-	1 6 1/ 1			+	\vdash		-
-					 \-		A few 1/4 inch			+	Н		-
-		\leftarrow			 \		thick brown			+	Н		
\vdash					 		clay lenses	\vdash		+	H		
						 	in the next 1/2 foot	-		+	H	\dashv	
						1	Vac. 17 .7.			+	H		\vdash
							saturation @ 75	П	-/	\top	\Box	一	\vdash
				1		/	Very 1t. odor. saturation @ 7.5' 5.5-10' gray Fine gtz sand	П		1	Ħ		
				H20			tine atz sand		DP33W-13-	-15,	1		
				samples			1			1	П		
]									
			1]			3.00				П		

* When rock coring, enter rock ** Include monitor reading in 6 Remarks:		ehole. Increase reading frequency	r if elevated reponse read.	Drilling Area Background (ppm):
Converted to Well:	Yes	No	Well I.D. #:	

[t	Tetra		IUS, Inc		<u>B0</u>	ORING LOG	NA.	sp site 21 Pag	је _		of_	
		NAME	E:	<u>site</u>	21		BORING N	lo.:	SP34 5-5-07				
		NUME COME	BER:	11260	00588 W	ताः	DATE: GEOLOGIS	QТ.	5-5-07				
		RIG:	AITI.	6610		((1	DRILLER:	J1.	Dave Dave	9			
						/ATE	RIAL DESCRIPTION	Т		PID/FI	D Rea	ding	(ppm)
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness			U S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
				A C. 4			0-4" It. brown						
							fine - coarse				П		
				<u> </u>			otz sand				П		
							l						
				7 -			84"-3' It. tan						
							to It gray fine, poor						
		<u>/</u> ,		soil			fine, poor	ļ	DP345 - 4.5-	5	5	,	
	<u> </u>	\angle		sample	\bot		consolidated gtz				Ш		
<u> </u>		/_	<u> </u>	-	\vdash		Sand	_					
┝		/					7/ 1/						
					1		3'-4' brown	_		Ш	\square		
-		-				\	tine atz sand	_	NO-116				
\vdash		-	<u> </u>	sorpho		+	with a black 1/4" clay lense		DP345-5.5-	6.	5		
-		-	<u> </u>	7054		1				Н	\vdash		_
				1420.		\ \			DP34W- 13-	ی			
				Sample		\top	saturation @ 6'		DIS W - 13	13			
						\	fine to sand		——————————————————————————————————————			\dashv	
						<u> </u>	t sand				\Box	\dashv	
]						П		\neg	
	<u> </u>	_	<u> </u>										
	ıde mor		er rock brong ng in 6 foo		@ borehole.	Increase	e reading frequency if elevated reponse i	read.	Drillin	g Ar	ea		

Include monitor reading in 6 foot intervals @ b		s @ borehole.	Increase reading freque	ncy if elevated reponse read.	Drilling Area Background (ppm):
Converted to Well:	Yes		No	Well I.D. #:	

		J		IUS, inc		<u>BC</u>	ORING LOG				-	of_	<u> </u>
		NAME	<u>:</u> :		05.tez		BORING N	0.:	DP35 5-5-07 J.D.Spaldin Dave Dunca				
		NUME COMF			0058	3	DATE:	٦ . .	5-5-07				_
		RIG:	AINT:	M30	<u>v</u>		GEULUGI	51:	J.D. Spaldin	7			_
	1110	IXIO.		OBIC		4 A T.C.	DRILLER.	ı	- Dave Dunca	2_			_
ample	Depth	Blows /	Sample	Lithology	PV	MALE	RIAL DESCRIPTION	U		PID/FI	D Rea	ading (PP
No. and ype or RQD	(Ft.) or Run No.	6" or RQD (%)	Recovery / Sample Length	Change (Depth/Ft.) or Screened interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller B7##
			,	1. J.			6"/ 1 to conswikite						Г
				4			6"Lightgrey-white fine 0725 and -8"Brow			\vdash	Н		_
				40°			Fine-Medfine Sand-41						_
		/		عورا: خمية وأو			4' Brown Discobration		DP3#S4.5-6.5				
							RTM6 Grex Med Fine Sand						
				, , , , , , , , , , , , , , , , , , ,			Grey-lighteress						
		\angle		3011			Grey-lightgrown Medfine QTZ Gand		DP355 5-6				
				Sample			wet@ 6.5 saturated					Ē	
				1 4 1			@9'w.t. 9-105+.						
		\angle											
		\angle		420					DP35W13-15				
		\angle		Sample					j.				
		\angle											
												\prod	
		\angle											
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		\angle										\Box	
											1		
												寸	

** Include monitor reading in 6 Remarks:	i foot intervals @	borehole. Increase reading frequency	if elevated reponse read.	Drilling Area Background (ppm):
Converted to Well:	Yes _	No	Well I.D. #:	

PRO. DRILI	JECT LING	F NAME F NUME G COMF G RIG:	BER:	5:te 1126 M+ 6610	21 005 83 W Ac	منالت	DITIELEIT.	ST:	5-5-07 JA Spald: Dave			<u> </u>	_ _ _ =
ample No. and ype or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval			RIAL DESCRIPTION Material Classification	U & C & *	Remarks	Sample Sample	Sampler BZ		T
		/					0-1' 14 brown	 		 	\Box	F	†
-							fine · coarse	+-		+	-		+
	 						<i>l</i>						_
_			 				1-2.5' fine	 '	<u> </u>	 	H	\vdash	_
-			 			M	lt. brown etz	+		+	H	\vdash	_
							6'					<u> </u>	_
	1,8			 		<u> </u>	2.5'- IM +.	<u> </u>				L	_
_			+-		H	\vdash	brown to 1t.	\vdash		-	H	H	•
\dashv			—	!	1	H	gray fine of	H		\vdash	H	Г	
_					\prod		6'						
	- 			Sample		<u> </u>	4/15- 17 17. brown		0P365-6-7			L	-
_					H		to blackish	\vdash			H	\vdash	,
-	$\overline{}$					H	brown clayey	H		H		abla	
							Saturation @ 8'			Ľ			
				So; 1 Sample	<u>V</u>	<u> </u>	7-8.5 dk grav		DP365-7-8.	5	Ц	<u> </u>	-
		\leftarrow	-	74.716		\vdash	fine atz sand	\vdash		┦	H	 	
	\Box		 			H	52	H		H	H		-
—	$\overline{}$	K		H40		$\vdash \vdash \vdash$	8.5-10- gray,	\vdash	13-1-13-14	1	\sqcap	Γ	-

* When rock coring, enter roc ** Include monitor reading in		ehole. Increase reading frequenc	cy if elevated reponse read.	Drilling Area
Remarks:		**************************************		Background (ppm):
Converted to Well:	Yes	No	Well I.D. #:	

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	t	J		NUS, Inc		<u>B(</u>	ORING LOG	NA	SP site 21 Pag	је [_]		of _	
		NAME NUMI		51+	e 21		 BORING N DATE:	lo.:	<u> 1873/</u>				
			PANY:	W4	WB	3 ci1(;		ST:	5-5-07 1 & Spald	<u></u>	1		
DRIL	LING	RIG:		66		T	DRILLER:		Daye	<u> </u>	1		
					N	IATE	RIAL DESCRIPTION			PID/FI	D Rea	ıding ((ppm
Sample No. and Type or RQD	(Ft.) or	Biows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness		Material Classification	U S C S *	Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
				3 4 0			0-4" It. tan			Г		П	
				<u> </u>									
				5 46 2 6 5		\vdash	fine - coarse atz	╁			Н		
		\sim			$\overline{}$	 	Jand.	├		\vdash	Н	\vdash	\vdash
-		$\overline{}$	 		$H \rightarrow$		4"-1.5' 1+. bion	⊢		\vdash	Н	\dashv	\vdash
				, ,	$\vdash \setminus $			<u> </u>		\vdash	Н	\dashv	
		/	 -	<u> </u>	 \-	1	to brown the				-	\dashv	
		\leftarrow		620	$\overline{}$		Sand Sand	-		\square		\dashv	
<u> </u>	- 34	/-	ļ		+						Н		
		<u> </u>		g(d)	-\-		1.5-2.5 14.	ļ					
		<u>/</u>				\	brown to It.						
					-	\Box	tan fine gtz	_		Ш	Ц		
		/_	ļ		1		sand					_	
		/								Ш		ightharpoonup	
							2.5-6 1t.						
							brown fine						ı
							atz sand						
					`	\ \							
				50.1					OP375-6-7			\Box	
				Sample			6-10 gray gtz					\Box	
							sand					\Box	
				H20					WP37W-13-	1.5	~		
				samples								コ	
										П		\dashv	
											\exists	寸	
										一	寸	\dashv	
			er rock bro		1	I		l					_
** Inclu Rem		itor readi	ng in 6 foo	t intervals (@ borehole. I	Increase	e reading frequency if elevated reponse	read.	Drillin Background				
										(PPI)	· '/· L		
Conv	ertec	to We	oll:	Yes			No Well I.D). #:					



Converted to Well:

Yes

No

	t	Tetra	Tech N	NUS, Inc		BC	DING LOG		Pa	ge 🛓	<u>1</u>	of _	<u>2</u>
		NAME NUME	≣: 8 F R•	UNSP	5,1e2 00583	1	DRING LOG BORING N	lo.:	MW \$76 5-09-07 I. D. Spalding Dave Duncan				
		COME	PANY:	MAY	/ Dellin	2.0	GEOLOGI	ST:	J. D. Son Idine	<u> </u>			_
		RIG:		6650	/ Dallin	*	DRILLER:		Dave Duncan				
			·		l N	MATE	RIAL DESCRIPTION	Т		PID/FI	D Rea	ıding (DDM
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	U S C S *	Remarks	Sample			
		\angle		0'			See DP05/14/39		Pushto 20'				
							See DP05/14/39 Sor 0-20'		Start Soil Bering				
]			Push to 20's fart		To Identify				
							Description		Start So. 1 Bring To Idontify Basal Aguaclude		Ш		
		\angle		20'			/				Ц		
		\angle					8" Medgrey Medfine					Ц	
		/_	ļ				QTZSand.				Ш		
		/_					2"Brotic wood/void			Ш	Ш		
		\angle					Trush forcy med fine						
		/		22.5			Sand-while Fine			Ш			
		\angle					S.nd.	L			Ш		
		<u>/</u>					Dark Block Biohe				Ш	\Box	
		/_					Sondy Clary W/CISASAEI BOHOM			Ш			
							W/CISASACI BOHOM			Ш		\dashv	
		/		25			@ 25			Ш		_	
		/					Dun Myroygreen/Black			Ш			
			ļ				CISA - SACI = Clay & top to	d	· · · · · · · · · · · · · · · · · · ·			_	
		<u>/</u>		ļ			3 Soft.				Щ	_	
		/_											
		/_		275								_	
		/_	ļ]			Same as above			Ш	Ц	\dashv	
	<u> </u>										\square	_	_
	ļ	\angle								\sqcup	_	_	
		/ /	ļ							Ш	Ц	\dashv	
<u> </u>	<u> </u>			30.									_
	ide mor	-	er rock bro		@ borehole. I	ncrease	reading frequency if elevated reponse	ead.	Drillir Background				_

Well I.D. #:

Page 2 of 2

PRO	JECT	NAME	<u>:</u> /	UASP.	Site 21 06583		BORING N	lo.:	NASP MW 76 5-9-07	6			
		NUM	ER:	11260	06583		DATE:	~-	5-9-07				
		COM	PANY:	MRW	Drilling	-	GEOLOGI	SI:	Jure Duncan				
DKIL	LING	RIG:		66101	<i>)</i>)		DNILLEN.					_	_
Sample	D45	Diame (S	l Mhalaar	N	<u>IATE</u>	RIAL DESCRIPTION	╽		PID/FI	D Rea	ıding	(pp
Sample No. and Type or RQD	(Ft.) or	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness		Material Classification	U	Remarks	Sample	Sampler BZ	Borehole**	Dellor B7**
		\angle					Der Kareen grey - Black						I
		\angle					Der Higreen grey-Black SACL loose \$ SOFT Daturated Not Consolate	ļ				_	L
	_						Saturated Not Consolate	rd		_	Ш		L
										_	Н		┡
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				1			Same as g poye						T
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						<u> </u>							
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Whe	rock c	oring, ent	er rock br	okeness.	1	<u> </u>							L
* Inclu		nitor readi	ng in 6 fo	ot intervals	@ borehole.		e reading frequency if elevated reponse	read.	Drillin Background				_
_	_										_		_
Con	verted	to We	ell:	Yes			No Well I.D). #:					_

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Nam	e :	PEN UST 21			Project No.	:N 4073	100	=
Location: Weather Conditions: Tidally Influenced:	Site 21			Personnel:	W.D. Olson/C. Od	dom		
		Vos	X No		Measuring Remarks:	Device:	Water level indica	ator
many min	y and the same of		4 10		Itemarks.		Break Stone New A	B3295 = 0 = 0 = 0
Well or Piezometer Number	Date	Time	TOC Elevation (feet)*	Installed Well Depth (feet)*	Measured Well Depth (feet)*	Water Level (feet)*	Groundwater Elevation (feet)*	Comments
MW-T			26.54	3.38?	NA	NA		Blocked
MW-2		0820	28.08	12.89	12.76	8,70		
MW-3	1110		28.89	5.58				Pad cracked, root Ovacle
MW-4		0929	28.59	12.34	12.20	8,29		stal solor
MW-5		0839	29.93	12.92	13.74	7.82		no lock
MW-6		0944	28.40	12.78	12.66	\$,03		Free poly
MW-7		8935	28.49	12.74	2.74	diy		Roots @ 6.5 ft
MW-8		0927	28.50	13.18	16.00	dy		Roots @ SWL
MW-9		0954	28.45	5.38	4.57	di		Blocked
MW-10		1	29.21	13.30		E		Chos 10-42
MW-11		०६५५	28.59	13.08	1300	7.46		
MW-12		0919	29.08	12.96	15.80	8,07		
MW-13		0835	28.74	13.14	13.05	7.58		ck
MW-14			28.93	13.44				Pad broken, lid
MW-15		0852	28.68	13.60	13.51	7.52		
MW-16		1100	28.53	14.34	13,15	7.31		
MW-17		0916	28.62	13.72	13.60	7.64		Lid gone.
MW-18		0833	28.68	13.73	13.62	17.41		
MW-19		1017	29.49	13.42	13.17	4.36		oder oder
MW-20		1025	29.55	13.66	13.51	8.51		
MW-21	(-41)	1150	29.20	13.24	13.01	6.04		
MW-22		1052	29.33	13.34	13,19	8,22 10) 05 Anchol		rock
MW-23		1057	29.04	7.44	2.74	of ostructed		a Tible
MW-24		1003	29.41	13.12	13.00	4		
MW-25	- ins	1045	29.28	13.26	13,18	4.08		

Page __



GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: Location: Weather Conditions: Tidally Influenced:		_X No		Project No.:N 4073 Personnel: W.D. Olson/H. Engle (, Octoo) Measuring Device: Water level indicator Remarks:								
Date	Time	TOC Elevation (feet)*	Installed Well Depth (feet)*	Measured Well Depth (feet)*	Water Level	Groundwater Elevation (feet)*	Comments					
		28.25	5.90				Blocked by roots					
	0842	28.79	33.88	33.6/	2,72		No lock					
	0450	28.36	13.08	12.98	8,20		100 (0ck					
	1933	NM	33.44	33,76	8,27		TOC not No (
		28.50	33.20				Destroyed c					
	1040	-2204	19.08	14.23	5.95		vo lac					
							Number not use					
	1505	27.97	14	12.90	7.38		non locking					
	_						hon locking					
				10000	10		cap 1/40					
14					11 0	d	11 %					
							1/					
7												
					2		unable to					
							Roots @ SWL					
	(123			1250	2.00		200 /2K					
				1	_		Non Placking					
							Non-lock					
	′ ′						くるり (それ)					
				,,	9.77							
	1444			1440	8.11		No lock					
	1 1 1 1			1 (, 10			12/10 1					
	0908	·· · · · ·		11.7-2	508		to 10001P					
		-					James VI					
	1701	28.85	13	11,12	0.21							
	aditions:	Site 21 Cold, Sunny nenced: Pate Time O 8 42 O 8 92 (233)	Site 21 Cold, Sunny TOC Elevation (feet)*	Site 21 Cold, Sunny TOC Installed Well Depth (feet)*	Site 21	Site 21	Site 21					

	2
Tt	Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Nan Location: Weather Co	nditions:	PEN UST 21 Site 21			Project No. Personnel: Measuring		Water level indica	ator
Tidally Infl Well or	uenced:	Yes	X No	Installed	Remarks:	Water Level	Groundwater	
Piezometer Number	Date	Time	Elevation (feet)*	Well Depth (feet)*	Well Depth (feet)*	(feet)*	Elevation (feet)*	Comments
MW-51		0742	28.31	13	12.60	413	,	
MW-52		0150	29.22	13	12.40	8.25		
MW-53		1445	28.80	13	12.09	6.88		
MW-54	2	1055	29.80	13	14.39	7.10	<i>[</i> *	No lock
MW-55			28.24	13				
MW-56			27.94	13				E#
MW-57			28.07	13				
MW-58		1602	28.45	13	12.43	7.87		12
MW-59		1608	28.08	13	12.65	6.89	ē.	
MW-60		1613	28.56	13	12.50	2,30		
MW-61		1637		*	14.45	8.0		
mu-62	18	1634			13.61	2.22		
nw-63	7	1635			14.47	6,90		
mw-64		1437			14.45	7.08	,	
nu-ut		1638			14.15	2.45		
nw-64		1640			14.25	2.60		
MW-67		1128			14.38	640		No lock
mw-68		1136			14.43	8,08		"
P3.WM		141			11.94	7,12		10
mu-70.		1210			14.40	6.83		No lock
~w-71	,= °	1202			14.50	7.89		No lock
mu-12		1157			14.53	6.72		wolack
mw73		1219		L	14.35	_	,	Notoch
nw-74		1226	Control of the Contro	1	12.80	7.36	-	No lock
25-25		12357			14.53	7.38		n, local

* All measurements to the nearest 0.01 foot

nw.76

Tetra Tech NUS, Inc.	
H	1

PROJECT NAME:

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL:

Horiba U. 2000

0		Remarks and Comments	p (†	200	onat	pr'o	200	Ho	Cond	700	down										
12 P		Calibration Standard (Lot No.)	5358		<i>გ</i> ንኒ>		\ 	2368										ļ 			
URER:	MBER:	Instrument Readings Pre- Post- alibration calibration	4,00	5. 50 44 9 5. 50 44 9	22.2	0.449	34	3,99	6)7/1.0	ر ا ا	3 10	3.97	870.0	1	20-	8,48					
MANUFACTURER:	SERIAL NUMBER:	Instrumen Pre- calibration	4'09	9.441	2.22	shh.	\$ 20 g	8	VER a	43/	2	25.3 He	51,460	1	h11 9m	882 00					;
		Settings Post- calibration														,					
		Instrument Settings Pre-Post-	stonetstissesesinglener																		
5,421		Person Performing Calibration	くろご		-0.0 -0.0		-	C.000		>		27.5							11	ř	
4AME:	PROJECT No.:	Instrument I.D. Number	91025		42 4016		→	910726	_	>	,										
SITE NAME:	PROJ	Date of Calibration	5-1-07		₹		→	5-8-01		7		2/10/07									



EQUIPMENT CALIBRATION LOG

PROJECT NAME: SITE NAME:

PROJECT No.:

INSTRUMENT NAME/MODEL:

Horbs 4-22

MANUFACTURER:

9262027

SERIAL NUMBER:

3500																					
Remarks	Comments																		1000		
Calibration Standard	(Lot No.)	200																			
Readings Post-	Calibration	6					4.00	94 p	7.0-	かって	200	449	0.0	4.04						á	
Instrument Readings Pre- Post-	Calibration		35%	-0.5		8.76									3.99	1000	される	0.4	8.64		İ
Settings Post-	Calibration	76.26	4.59	128-	1	7.55	7,61	447	3.5	F. C.C.	4,02	4.47	12	7.28	413	**	60%	12.0	6.58		
Instrument Settings Pre- Post-	cambration	20	Cond	Tuch	4	DC	Hd	Cand	lemb	00	OH.	ford	tro	00	Ha		None	Fearb	20		
Person Performing	Calibration	, restract					C-500,0				C.Dan				TR						
Instrument I.D.	Mulliber					777.00															
Date of	Calibration	1				,	10/2/2				5-5-02	ű.			20/01/5						



EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL:

PROJECT NAME: PROJECT NAME: PROJECT No.: SITE NAME:

MANUFACTURER: SERIAL NUMBER:

			 			 		 		 	 		 	 		_		 	
Remarks and Comments	onnesse en section de la proposition de la company de l											+2							
Calibration Standard (Lot No.)			50																
Instrument Readings Pre- Post- alibration calibration																			
Instrument Pre- calibration	SPASSOS SESSOS SPASSOS																		
Settings Post- calibration	000	1000		000	10.00	0,00	10.00	000	10.00										*
Instrument Settings Pre-Post-calibration	0.04	10,00		0.03	10,53	1.01	10,13	23	10.80										
Person Performing Calibration																			
er er																			
l lo	5/7/0)			5/8/07		20/6/5		2/19/07	ē										



PROJECT NAME:

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL:

SITE NAME:

MANUFACTURER:

PROJECT No.:

SERIAL NUMBER:

ME (0457

Comments Remarks 1,0 0.01 UDIO 10(0) ONTU. 10.0 NTU Standard Calibration (Lot No.) calibration 10.07 Instrument Readings
Pre- Post-1,0 L calibration 2.16 1.62 calibration Instrument Settings
Pre- Postcalibration Performing Calibration Person Instrument I.D. Number 5907 5-10-07 Calibration 5-16-07 Date

Tetra Tech NUS, Inc

GROUNDWATER SAMPLE LOG SHEET

Page 1_of_1

Project Site Name: Project No.:	NAS Pensaco	ola UST Sit	e 21		Sample		PEN21GW0402				
[] Domestic Well Data[X] Monitoring Well Data[] Other Well Type:[] QA Sample Type:					[X] Lo		tration	<u>do m</u>			
SAMPLING DATA:			and the state of t					en de la companya de	1		
Date: ら- 8 - 0 つ	Color	pН	s.c.	Temp.	Turbidity	DO	ORP		1		
Time: 1700	Visual	Standard		°C	NTU	m g/l	m V	Time			
Method: Cow to		6.26	23.3	22.93	4.79	0.16	-52	1700			
PURGE DATA:									Į		
Date: 5-8-07	Volume	рH	s.c.	Temp. (C)	Turbidity	DO	ORP	Time	5		
Method: (a) Haw	1.00	6.17	21.4	22.69	11,4	0,60	一次	1643	8		
Monitor Reading (ppm):	2.00	6.24	27.4	225	8.4	0.21	-50	1648	[]		
Well Casing Diameter & Material	3,06	Q25	27.4	22.9	S.3C	0.22	-51	1653	J۷		
Type: 2.0" PVC	4.01	6.24	23.3	22.93	4.79	0,16	-52	1658	18		
Total Well Depth (TD): 1へ.2〇)								1		
Static Water Level (WL): 8.35									1		
34 کرور One Casing Volume						3.2/		 			
Start Purge (hrs): 1639				•					1		
End Purge (hrs): 1700									1		
Total Purge Time (min):				-					t		
Total Vol. Purged (gal/L):									ł		
SAMPLE COLLECTION INFORM	ATION	See See See See See				Zángal városta			1		
Analysis		Preser	vative		Container	Requireme	nts	Collected	ı		
SW-846 6010B - Total L	ead	HN			1 - 1L i	· -		(YES/)NO	1		
									1		
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NATURAL ATTENUATION PARA	AMETERS / OB	SERVATIO	NS / NOTE	S							
Field Test Kit Results				20	V/ak	= 2m	- (l a .		1		
Dissolved Oxygen		_		1.0		-07	· voj mo	,			
Ferrous Iron		-									
Hydrogen Sulfide	,	-									
Carbon Dioxide		-									
Alkalinity Sulfide		-									
Circle if Applicable:			785 Y 1788		Signature(s):			1		
MS/MSD Duplicate ID No	o.:										
					6	6	_				
TBD: To Be Determined									1		



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GROUNDWATER SAMPLE LOG SHEET

							raye	<u></u>	_
Project Site Name: Project No.:	NASP Site 2 CTO 56 112					ID No.: Location:	PENZI CON		
[] Domestic Well Data[X] Monitoring Well Data[] Other Well Type:[] QA Sample Type:	a 				C.O.C. Type of _ [X] Lo		tration		
					_ 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	1 CONCENT	ation		_
SAMPLING DATA:							La Pari		4
Date: (7-7-07) Time: (99)(5)	Color	pH	S.C.	Temp. (°C)	Turbidity	DO (7)	Salinity	Others	1
Method: los flow	(Visual)	(S.U.)	(mS/ 4 m)	22.2	(NTU)	(mg/l) 0.05	-76	8.53	┨
PURGE DATA:	1814 11		als de les	建 有 10 表表 2		_U.U.J			1
Date: 5-7-97	Volume	pН	s.c.	Temp.	Turbidity	DO	Salinity	Differ	11
Method: 122 flee	1.5	6.23	45.4	22.1	12.2	0,13	-51	8,54	DC
Monitor Reading (ppm):	3.0	628	44.1	22,2	10.3	0,03	1-17	8.53	99
Well Casing Diameter & Material Type: Z_{Q}^{α} PVC	4.5	6.29	44.2	22.2	9,9	50,05	-76	8.53	09
Total Well Depth (TD): 13.00	T				1				1
Static Water Level (WL): 7,5 (†						1
One Casing Volume(galQ) 5.79	1	1					<u> </u>		1
Start Purge (hrs): 0905	 	†					<u> </u>	 	1
End Purge (hrs): On (5	1	 						1	1
Total Purge Time (min): 15		1						 	1
Total Vol. Purged (gall) 4.5	 	+						+	1
SAMPLE COLLECTION INFORMA	ATION:	E 5- 1						Henry Practical	1
Analysis		Prese	vative		Container R	equirements		Collected	1
total Ph		HMC		1 1		Yes	1		
						•]
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	-	 							4
		-							┨
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		 						<u> </u>	1
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				34.0]
									1
APAPPALIANA I CAMPA	es de la companya de	1							4
OBSERVATIONS/NOTES:	nella.						113		
1.22 18 2	1.20								
Circle if Applicable:				postalli.	Signature(s):			1
MS/MSD Duplicate ID No.	.:				//				



Page___ of _

Project Site Name: Project No.: [] Domestic Well Data [X] Monitoring Well Data [] Other Well Type: [] QA Sample Type:	NASP Site 2 CTO 56 112				Sample C.O.C. Type of [X] Lo	ed By:		
SAMPLING DATA:			er il let i	50000000000000000000000000000000000000		18800 (450		
Date: 5-7-07	Color	рН	s.c.	Temp.	Turbidity	DO	Salinity	Other
Time: 09:43	(Visual)	(S.U.)	(mS/cm)	(⁰ C)	(NTU)	(mg/l)	(%)	
Method: ow Flow		0.36	0,507	22.60	2.76	3,21	0.0	
PURGE DATA:			3. <u>(</u>)					
Date: 5/7/07	Volume	pН	s.c.	Temp.	Turbidity	DO	Salinity	Other
Method: low flow		6.44	0.582	23.15	16.1	2.47	0.0	
Monitor Reading (ppm):		6.37	0.543	22.70	1.81	2,32	0.0	
Well Casing Diameter & Material			0.507	22.60	2.76	3.21	0.0	
Type:		18.70	1			1.6	1	
Total Well Depth (TD): 12.80						1		
Static Water Level (WL): 8.10		Ì					<u> </u>	
<u> </u>		ļ					-	
One Casing Volume (gal/L): .75		ļ	-	_			 -	
Start Purge (hrs): 0930		 						<u> </u>
End Purge (hrs): 0943								
Total Purge Time (min):		ļ						
Total Vol. Purged (gal/L):							<u> </u>	
SAMPLE COLLECTION INFORMA	TION:		to the first	-				
Analysis		Preser				equirements		Collected
Total Pb		HV	103		1 × 2	.00 mL	plastic	×
19								
		-					-	
		1						
		l .						
OBSERVATIONS / NOTES:								
4								
0								
Circle if Applicable:	1				Signature(s):		
MS/MSD Duplicate ID No.:					1	11	. 11	
					/ .	Half	hil!	
. I					/ X	~ ~		



Page___ of ___

Project Site Name: Project No.: [] Domestic Well Data [X] Monitoring Well Data [] Other Well Type: [] QA Sample Type:	NASP Site 2 CTO 56 1120				Sample C.O.C. Type of [X] Lo	Location: d By:		
SAMPLING DATA:		100						pagarata ang
Date: 5/7/07	Color	рН	s.c.	Temp.	Turbidity	DO	Salinity	Other
Time: 0912	(Visual)	(S.U.)	(mS/cm)	(⁰ C)	(NTU)	(mg/l)	(%)	
Method: low Flow	clear	6.34	0.672	21.76	0.09	2,78	0.0	
PURGE DATA:								
Date: 5/7/07	Volume	pН	s.c.	Temp. C	Turbidity	DO	Salinity	Other
Method: low flow	Mal	5.56	.784	22.38	50.7	2.40	0.0	
Monitor Reading (ppm):	x87591	5.84	0.785	22.52	10.07	159	0.0	
Well Casing Diameter & Material	1,2001	6.13	0.661	21,93	3.73	8.65	0.0	
Type: 2 PVC	- 5	6,34	0.672	21,76	0,09	2.78	0.0	
Total Well Depth (TD): 13.05								
Static Water Level (WL): 7.66	CONTRACTOR OF THE PROPERTY OF		1000					
One Casing Volume(6al/L): \$7							0.	
Start Purge (hrs): 0848								
End Purge (hrs): 09/2								
Total Purge Time (min):								
		-						
Total Vol. Purged (gal/L): SAMPLE COLLECTION INFORM	ATION:		L		Single Si	100000		
Analysis		Preser	vative		Container B	equirements		Collected
Total Pb		4/	1/0-	a	00 ml	Pal	,	1/
, , , , , , , ,	**							
The second secon							200-1-1 D	
							W-2-1-2-2-	
				=				
			1000	9	5.547 Sap. 15.547			
A COMMENTAL PROPERTY OF THE PR								
						**********		· · · · · · · ·
(11-1-12)				200				
OBSERVATIONS / NOTES:					and the second second	/		
flow rate		*****		***************************************			***************************************	
1100-147e								
J. N.								
Circle if Applicable:					Signature(s	<u> </u>		
MS/MSD Duplicate ID No	•	wesessa in Intiliining			Signature(s			
mormos Duplicate is No	••				\ \rightarrow\	5-		$\overline{}$
					//	1	-	AUG



							raye	0 100 mm 100 E	
Project Site Name: Project No.: [] Domestic Well Data [X] Monitoring Well Data [] Other Well Type: [] QA Sample Type:	NASP Site 2 CTO 56 112				Sample ID No.: PENZIGUEDO Sample Location: MURIS CO Sampled By: C.O.C. No.: Type of Sample: [X] Low Concentration [] High Concentration				
SAMPLING DATA:	1000.00			9.11 40 455 415		H G M			
Date: 5-7-07	Color	рН	s.c.	Temp.	Turbidity	DO	-9atthity	T Other	1
Time: 0955 C	(Visual)	(S.U.)	(mS/em)	(°C)	(NTU)	(mg/l)	OR S	To the second	1
Method: In flu	(, , , , , , , , , , , , , , , , , , ,	6.39	48.5	21.8	12.6	0.13	-30	7.62	1
PURGE DATA:								SW	1 -
Date: ラ-クーのつ	Volume	pН	s.c.	Temp.	Turbidity	DO	Sainity	-other	عر
Method: los flar	15	641	51.3	269	38.9	0.70	-31	7.61	- - -
Monitor Reading (ppm):	3.0		501	21,9	14.9	0.14	-31	7.62	-00
		6.40		21.8				7,62	10
Well Casing Diameter & Material Type: こつい アレニ	4.5	6,39	48.5	21.0	12,6	0.13	-30	7, 6	Ⅎஂ
Total Well Depth (TD): 3, 5 (
Static Water Level (WL): 7,53			1						
One Casing Volume(gal/ 🗘 }, 63	1.49		Î						1
Start Purge (hrs): 0940									7
End Purge (hrs): 0'955			t e						1
Total Purge Time (min):		 	ł			5(H.R) - C-		1	1
Total Vol. Purged (gal/L):				2000000	+ :				٦.
SAMPLE COLLECTION INFORMA	TION:		L						
Analysis	illoit.	Preser	vative		Container R	equirements	•	Collected	-1
tofal Vb		CUH		11	120021			Yes	1
		,,,	•			PIGIC			1
						- 2000/40000			1
								3 - 35.9%]
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S S S S S S S S S S S S S S S S S S S		2			2.3				4
		G T							
OBSERVATIONS / NOTES:									
for rate = 3000	Chry								1
1262 1261	-1								1
									1
									1
									Т
Circle if Applicable:	Tanan ita				Signature(s	1:	3-30-10		1
MS/MSD Duplicate ID No.					- /· 1				1
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					$I \cup A \sim$				1



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Project Site Name: Project No.:	NASP Site 2 CTO 56 112					Location:	Site a	W1602
[] Domestic Well Data [X] Monitoring Well Data [] Other Well Type: [] QA Sample Type:	Sampled By: C.O.C. No.: Type of Sample: [X] Low Concentration [] High Concentration							
SAMPLING DATA:			The oran					
Date: 5-7-07	Color	рН	S.C.	Temp.	Turbidity	DO	Salinity	Other
Time: (いろの	(Visual)	(S.U.)	(mS/cm)	(⁰ C)	(NTU)	(mg/l)	(%)	
Method: low flow		6.44	0.632	22.21	0.03	9.91	0.0	
PURGE DATA:			γ					
Date: 5-7-07	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: low flow	1	6.64	0.661	23.39	39.2	2.74	0.0	22.548
Monitor Reading (ppm):		6.56		22.64	14.0	2.00	0.0	
Well Casing Diameter & Material		6.45		22.34	2.42	210.1	0.0	
Type: 2 PVC	-	6.44	0.632	22.21	0.03	9,91	0.0	
Total Well Depth (TD): 13.15							0. 240.	
Static Water Level (WL): 7.3								
One Casing Volume(gal/L): 1,936	ļ	.						
Start Purge (hrs): 103	<u> </u>							
End Purge (hrs): 1130								
Total Purge Time (min):							22.252.322	
Total Vol. Purged (gal/L):			A SECULIA MANAGEMENT					
SAMPLE COLLECTION INFORMA	TION:	H M Neessa	11/6/2011/0		Ot-i D		1000000	
Analysis		Preser	vative)	Container R			Collected
10/4/10		11,70	3		UU MU	- 04		
						25 26 200800 11		

			-	15.				
5					34- SAMURY 12-22			-
				10 cm				24 - 51
		8						
OBSERVATIONS / NOTES:								
7.3								
13.15								
5.85 × 0.16	= 0.9	36						
Circle if Applicable:					Signature(s			
MS/MSD Duplicate ID No.	:				1	Hall	Will	



Page__/_ of __/

Project Site	Name:	NASP Site 2				Sample ID No.: PENAIGW1702			
Project No.:		CTO 56 112	G00583		 	Sample Location: Site d/ Sampled By:			
□ Domest	tic Well Data					C.O.C.		<u> </u>	<u></u>
	oring Well Data						Sample:		_
	Vell Type:						w Concent	ration	:
[] QA Sar	nple Type:					[] High	Concentr	ation	
SAMPLING DAT	A:								
Date: 5	7/7	Color	pН	S.C.	Temp.	Turbidity	DO	Salinity	Other
Time: 10	35	(Visual)	(S.U.)	(mS/cm)	(⁰ C)	(NTU)	(mg/l)	(%)	
	flow		6.39	0.474	23.65	1.90	8.96	0.0	
PURGE DATA:				1					
Date: 5	7/7	Volume	pН	s.c.	Temp.	Turbidity	DO	Salinity	Other
Method: /ou	v flow		6.62	0.579	23,58	5.46	9.2	D.O	
Monitor Reading	(ppm): 0		6.58	0,500	23.69	3,47	4,67	0.0	
Well Casing Dian	neter & Material		6.47	0.487	23.91	2.84	9.42	0,0	1
Type: よっ	PVC		6.39	0.474	23.65	1.90	8.96	0.0	
	(TD): /3,60		14.2	<u> </u>	~ 2		05 7 10	0,0	
	el (WL): 7,60		†						-
	me(gal/L): 0.96								
Start Purge (hrs):	A A		<u> </u>						
				-					
End Purge (hrs):	1035								-
Total Purge Time			ļ					_	
Total Vol. Purged									<u> </u>
	CTION INFORMA	TION:							
	Analysis		Preser	vative	3.0	Container Ro	7 /		Collected
Tot	4/ 10		17/1	703	200	mal	voly_		31.0
			 						-
							- 11		
			<u> </u>						
OBSERVATIONS	·			l . i . /	.1 1 . 1	<u> </u>			
70-	・WL=	\times	H	← We	11 110	13 m	ssins.		
X i	r.16=V	Tolume	_						
	.16= 0.90	, Q				.1			
Circle if Applica			Yellan miray			Signature(s)			
MS/MSD	Duplicate ID No.:					J.	Halfle	\mathscr{M}	
L						/ /			

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Page 1 of 1

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Project Site Name: Project No.:	NAS Pensac	ola UST Sit	e 21	- -	Sample Sample	•	PEN21GWB02 MWIS C. Odom		-
[] Domestic Well Data[X] Monitoring Well Data[] Other Well Type:[] QA Sample Type:				- -	[X] Lo	No.: f Sample: ow Concen gh Concent			
SAMPLING DATA:							Her Land		100
Date: 5- 7- 0-7	Color	pН	S.C.	Temp.	Turbidity	DO	ORP		
Time: 1(4)	Visual	Standard	m S/#m	°C	NTU	mg/l	mν	Time	
Method: (o w + tow	des	655	45.2	22.7	10.15	ତ.ଦିବ୍	82	1,40	
PURGE DATA:									39
Date: 5-1-5<	Volume	рН	s.c.	Temp. (C)	Turbidity	DO	ORP	Time	5
Method: low-thow	1.0	6.84	38.2	22.9	2,1:4	2.23	916	1152	$\exists 2$
Monitor Reading (ppm):	2.0	6-68	43.2	22.7	23.9	1,47	94	1130	٦;
Well Casing Diameter & Material	3.0	6,60	44.7	22,7	17.9	1,13	مر ا	1135	⊣ っ
Type: 2,0 " PUC	4.0	6.55	452	22.7	 		82		7
	1.0	18.27	17.4	CC1	10.15	0,99	02	1140	- `
Total Well Depth (TD): \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	 	 			<u> </u>				-
Static Water Level (WL): 7,42		-	-		<u> </u>			2-	4
One Casing Volume(ga(L)) 3, y		<u> </u>		•					_
Start Purge (hrs): ((20		ļ			ļ				4
End Purge (hrs):									╛
Total Purge Time (min):									
Total Vol. Purged (gal/L):									1
SAMPLE COLLECTION INFORM	ATION:		2 (2 m)/4						
Analysis		Preser	rvative		Container	Requireme	nts	Collected	
SW-846 6010B - Total L	ead	HN	103		1 - AL	Plastic		(ES/NO	_
								\perp	4
		<u> </u>							4
<u> </u>		<u> </u>				-		 	-
								+	-
		 						+	-
		 						+	1
						·			1
		1							1
	*							1916	1
NATURAL ATTENUATION PARA	AMETERS / OE	SERVATIO	NS/NOTE	S			Price.	, with start	
Field Test Kit Results							,		7
Dissolved Oxygen		_		4(00	rate=	2002	Ymu		
Ferrous Iron		_	18	f	r (;	1	•		
Hydrogen Sulfide	1	- 4	Offee	+ 10NW	ottire g	109			1
Carbon Dioxide		-			'				1
Alkalinity		_							
Sulfide Circle if Applicable:	Selfonesia was	esta metada	Control of the London	ESS CONTRACTOR	Signature	(e):			\dashv
MS/MSD Duplicate ID N					Signature	(3).			1
mainiau pupiicate ib N	J.,				1//0-	(0)			1
TRIVE O RO DOLONGO									JUS
TBD: To Be Determined									743



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Project Site Name: Project No.:	NASP Site 2 CTO 56 1120	·	· · · · ·		Sample Sample Sample	Location:	PENZI 6 MWI	W1902 9	
Domestic Well Data[X] Monitoring Well DataOther Well Type:QA Sample Type:	a =				C.O.C. Type of [X] Lo		ration		
SAMPLING DATA:						4			
Date: 5-9-07	Color	pН	s.c.	Temp.	Turbidity	DO	Salinity	Other	0
Time: 0835	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	_	
Method: /ow flow PURGE DATA:	Minora White	6-37	.462	23.77	7.23	0,00	0.0		~
Date: 5/9/07	Volume	pН	s.c.	Temp.	Turbidity	DO	Salinity	_Other time	5
Method: low flow Peristalting			,466	23.70	58,1	1.09	0.0	08:15	
Monitor Reading (ppm):	1	6.25	,455	23.71	22.8	0.08	0.0	08:20	-1
Well Casing Diameter & Material		6.30	,456	23.75	14,0	0.00	0,0	0825	-1
Type:		6.35	.462	23.81	8.85	0.00	0.0	0830	7
Total Well Depth (TD): 13-17		6.37	.462	23,77	7.23	0.00	0.0	0835	-
Static Water Level (WL): 9.38		<u> </u>	102	277	1.23	0.00		0 11 2 3	ļ
One Casing Volume(gal/L): 0.77									
Start Purge (hrs): 0815	1								
End Purge (hrs): 0835	<u> </u>								
Total Purge Time (min):	1			15.7			<u> </u>		
Total Vol. Purged (gal/L):	<u> </u>								
SAMPLE COLLECTION INFORMA	ATION:	- Evy			<u> </u>		i za nji na h	ille Agil Ogga v Ag	
Analysis		Preser			Container R	equirements		Collected	
Total Pb		N N	0.	1	× 20	Oml	plastic	X	
							•		
					1				
					 				
2					-				ļ
OBSERVATIONS / NOTES:				2.2					
strong petro o	dor							;	
01210	4.79 :	× 0.	16 =						
4.79									
Circle if Applicable:		i wata iku ja	:= 10° [1]		Signature(s):	 		
MS/MSD Duplicate ID No	2				_/,	Hal	Unil		



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Project Site Name: Project No.: [] Domestic Well Data [X] Monitoring Well Data [] Other Well Type: [] QA Sample Type:	NASP Site 2 CTO 56 112				Sample Sample Sample C.O.C. Type of [X] Lo	W2002		
SAMPLING DATA:	F.S. Christia	dyeden.		N. W. A		W- 1075		
Date: 5-9-07	Color	pН	S.C.	Temp.	Turbidity	DO	Salinity	Other
Time: 0800	(Visual)	(S.U.)	(mS/cm)	(⁰ C)	(NTU)	(mg/l)	(%)	
Method: low flow		6.21	.549	23.73	5.15	0.00	0.1)	
PURGE DATA:								
Date: 5/9/07	Volume	pН	s.c.	Temp.	Turbidity	DO	Salinity	_Other +i'm
Method: low flow Peristaltic		6.24	\$57.0	23.66	29.5	0.13	0.0	0745
Monitor Reading (ppm):		6.28	.547	23.69	11.2	0,00	0.0	0750
Well Casing Diameter & Material		6.31	.551	23.72	7.48	0.13	0.0	0755
Type:		6.31	.549	23.73	5.15	0.00	0.0	0800
Total Well Depth (TD): 13.51		W - 7	1 7 7	22012	3110	10.200		0000
Static Water Level (WL): 8,56	1		 		 	 		
One Casing Volume(gal/L): 0, 79								
Start Purge (hrs): 07 4,5	·		 					-
	<u> </u>	1	 				ļ	
End Purge (hrs): 0800	 		<u> </u>					
Total Purge Time (min):								
Total Vol. Purged (gal/L): SAMPLE COLLECTION INFORMA	TON							
	TION:	Broco	rvative		Container B	lequirements		Collected
Analysis Total Pb		L U	No 3	1		on mL	plastic	
10121		, , ,	3	•	<u> </u>	O() MIE	PIASTIC	
						·		
-						 .		
		ļ						
						<u> </u>		146
								5/43
		<u> </u>						
OBSERVATIONS / NOTES:	n Mark Lanina			1 S W				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2		-					
Circle if Applicable: MS/MSD Duplicate D No.	:		ve la	n Tunufulgaeyres	Signature(s	e): Hold		
PEN216W2002MIP PEN216W20	1021				I/Y -	lay	mil/	

PEN216W2002MD

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Project Site Name: Project No.:	NAS Pensaco	ola UST Sit	e 21		Sample	D No.: Location:	PEN21GW2102		
[] Domestic Well Data[X] Monitoring Well Da[] Other Well Type:[] QA Sample Type:	onitoring Well Data ner Well Type: Sample Type:					Sampled By: C.O.C. No.: Type of Sample: [X] Low Concentration [] High Concentration			
SAMPLING DATA:									1
Date: 5-1-07	Color	рН	S.C.	Temp.	Turbidity	DO	ORP		1
Time: (35% n.	Visual	Standard		°C_	NTU	m g/l	m V	Time	ı
Method: Louton	Clear	605	ع ، ک	22.3	2.2	4.44	43	1358	1
PURGE DATA:						i sweye			
Date: 5-7-0-7	Volume	рН	s.c.	Temp. (C)	Turbidity	DO	ORP	Time	5
Method: (0~ +6~	1.0	6.22	lo.?	22.3	11.1	3.84	38	1343	8
Monitor Reading (ppm):	7.0	6,16	9.7	22.3	9.8	5.83	30	1348	5
Well Casing Diameter & Material	3.0		9.5	22.3	8.9	4.56	43	13.223	8
Type: 2.0" PUC	4,0	6.05	9,6	22,2	7.2		<13	1358	8
Total Well Depth (TD):	1.0	6,07	ارب	24	1,0	4,44	-()	1270	1
									l
Static Water Level (WL): \$.56									l
One Casing Volume(gal(L))	*							- 	l
Start Purge (hrs): 1338								1	ı
End Purge (hrs): ソング						1.	•		ı
Total Purge Time (min): 20									ı
Total Vol. Purged (gal 🗘 🤟									
SAMPLE COLLECTION INFORM	ATION:						17 1 A	1 4	
Analysis	·	Preser	vative		Container i	Requireme	nts	Collected	ı
SW-846 6010B - Total Le	ead	HN	О3		200 1-46 F	lastic		YES NO	

								1	
								 	ĺ
									ı
								 	
								†	ı
					·				
NATURAL ATTENUATION PARA	METERS / OB	SERVATIO	NS / NOTE	S					
Field Test Kit Results	*			`,			/		
Dissolved Oxygen		_	7	lau rai	te = 20	22-4	~~		
Ferrous Iron	• • • • • • • • • • • • • • • • • • • •	-							
Hydrogen Sulfide		-							
Carbon Dioxide Alkalinity		-							
Sulfide	•	=							
Circle if Applicable:					Sig m álure(s):			
MS/MSD Duplicate ID No).:				1/	2			
TBD: To Be Determined	To the second					7			

T -	Tetra Tech NUS, Inc.
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SAMPLING DATA: Date: 5-7-07 Time: 14:06 Method: 10W Flow PURGE DATA:	Color Visual			-		ow Concer Ih Concent			
Time: 14:06 Method: low flow	-1								
Method: low flow	Visual	pН	S.C.	Temp.	Turbidity	DO	ORP		sal.
		Standard		°C	NTU	mg/l	m V	Time	
TO TOLE BITTE		16.47	0.599	23,00	2.02	10.00	-144	14:05	0.
Date: 5/7/07	Volume	T au	s.c.	Town (C)	Tumbiditu	DO	ODD	T	sal
Method: low flow	Volume	6.37	0.595	Temp. (C)	Turbidity	DO DO	ORP	Tim e	1
	 	1,		25.83	0.21	2.01	- 116	13:40	0.
Monitor Reading (ppm): Well Casing Diameter & Material	 	6.55		23,46	3.99	4.09	-139	13:53	0.0
_		6.51	0.599		2.65	9,8)	-142	14:00	0,6
Type:	 	6.47	0.599	23.00	2.02	10.00	-144	14:05	0.0
Total Well Depth (TD):									
Static Water Level (WL):	<u> </u>							 	
One Casing Volume(gal/L):								_	
Start Purge (hrs): \340			ļ			-	ļ		
End Purge (hrs): \4:05									1
Total Purge Time (min):	ļ								Į
Total Vol. Purged (gal/L):									1
SAMPLE COLLECTION INFORM	ATION:								
Analysis SW-846 6010B - Total L	 	Preser	vative 103		Container I		nts	Collected YES / NO	1
								*:	
NATURAL ATTENUATION PAR	AMETERS/OB	SERVATIO	NS / NOTE	3					
Field Test Kit Results Dissolved Oxygen Ferrous Iron		To lev	tal el	well dep	oth au	nd st	atic	water th	
Hydrogen Sulfide Carbon Dioxide		- Wat	rer	level:	adicata	- 1	7		
Alkalinity		- 110	the	well	········	٠ ٠٠٠٠	- 78	organics	
Sulfide	-	- 140		40011				-	
Circle if Applicable:				Bar Fally a	Signature(s):			1
MS/MSD Duplicate ID N	o.:					Hal	111. 1		

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Tt	Tetra Tech NUS, Inc.

Monitoring Well Data Type of Sample: M Low Concentration High Co	Project Site Name: Project No.: [] Domestic Well Data	NAS Pensaco	AS Pensacola UST Site 21				•		PEN21GW2402 MW 24 P. Doly			
Date: \$-9-0	[] Other Well Type:	ta 				Type of [X] Lo	Sample: ow Concen					
Time	SAMPLING DATA:							P	Barrell St.	1		
Method: Log Continue Contin		Color	pН	S.C.	Temp.	Turbidity	DO	ORP		ĺ		
PURGE DATA:	Martin and American	 	7	m S/¢m		1		1		l		
Date: S - 9 - 0	0000 / (00	cleal	630	76.9	-24.39	12.9	0006	-155	Oras			
Monitor Reading (ppm): 2,0			NAME OF TAXABLE PARTY.			I				- I		
Monitor Reading (ppm): 2.0	7.					<u> </u>						
Well Casing Diameter & Material Type: 2.5° {UC Total Well Depth (TD): 13, 60 Total Well Depth (TD): 13, 60 Static Water Level (WL): 4, 4, 4 One Casing Volume(gal(5); 275 Start Purge (hrs): 0, 9, 4, 3 End Purge (hrs): 0, 9, 4, 5 End Purge (hrs): 0, 5, 5, 8 Total Purge (hrs): 0, 14, 5 End Purg			†					•	 			
Type: 7.0° (VC Total Well Depth (TD): 7.00 State Water Level (WL): 1.4 Y One Casing Volume(gal(f)): 7.5 Start Purge (Iris): 0.7 4.2 End Purge (Iris): 0.7 4.2 End Purge (Iris): 0.5 5.8 Total Purge (Iris): 0.5 5.8 Total Purge Time (min): SAMPLE COLLECTION INFORMATION: Analysis Preservative Container Requirements Collected SW-846 60108 - Total Lead HINO3 1 - 1L Plastic SW-846 60108 - Total Lead NATURAL ATTENUATION PARAMETERS / OBSERVATIONS / NOTES "Field Test kit Results" Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:										`		
Total Well Depth (TD): \(\bar{1}, \cdot{\Omega} \) Static Water Level (WL): \(\bar{1}, \cdot{\Omega} \) Static Preservative (Institute Preservative Pre	_	3.02	6.50	46.9	24.39	8,4	0.06	-133	०४५४	8.49		
Static Water Level (WL): \$\frac{4}{3} \text{ for State Parge (firs): \$\frac{1}{3} \text{ for State Parge (firs): }\frac{1}{3} for State Parge (firs												
One Casing Volume(gal(s)) 75 Start Purge (hrs): 0 9 9 3 End Purge (hrs): 0 9 5 8 Total Purge Time (min): Total Vol. Purged (gal/L): SAMPLE COLLECTION INFORMATION: Analysis Preservative Container Requirements Collected SW-846 60108 - Total Lead HNO3 1 - 1L Plastic Es No NATURAL ATTENUATION PARAMETERS / OBSERVATIONS / NOTES "Field Test kit Results" Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dloxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:	Total Well Depth (TD): 13,00									ĺ		
Start Rurge (hrs): 0 1 4 3 End Purge (hrs): 0 5 5 8 Total Purge Time (min): Total Vot. Purged (gatV.): SAMPLE COLLECTION INFORMATION: Analysis Preservative Container Requirements Collected SW-846 6010B - Total Lead HNO3 1 - 1L Plastic (EST)NO NATURAL ATTENUATION PARAMETERS / OBSERVATIONS / NOTES "Field Test Kit Results" Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:	Static Water Level (WL): \(\), 4 \(\)									İ		
End Purge (hrs): 0 5 5 8 Total Purge Time (min): Total Vol. Purged (gaVL): SAMPLE COLLECTION INFORMATION: Analysis Preservative Container Requirements Collected SW-846 6010B - Total Lead HNO3 1 - 1L Plastic (ES) NO NATURAL ATTENUATION PARAMETERS / OBSERVATIONS / NOTES **Field Test Kit Results** Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:	One Casing Volume(gal/(1):)275											
End Purge (hrs): 0 5 5 8 Total Purge Time (min): Total Vol. Purged (gaVL): SAMPLE COLLECTION INFORMATION: Analysis Preservative Container Requirements Collected SW-846 6010B - Total Lead HNO3 1 - 1L Plastic (ES) NO NATURAL ATTENUATION PARAMETERS / OBSERVATIONS / NOTES **Field Test Kit Results** Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:	Start Purge (hrs): 543				,							
Total Purge Time (min): Total Vol. Purged (gal/L): SAMPLE COLLECTION INFORMATION: Analysis Preservative Container Requirements Collected SW-846 6010B - Total Lead HNO3 1 - 1L Plastic (ES) NO NATURAL ATTENUATION PARAMETERS / OBSERVATIONS / NOTES "Field Test Kit Results" Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:												
Total Vol. Purged (gal/L): SAMPLE COLLECTION INFORMATION: Analysis Preservative Container Requirements Collected SW-846 6010B - Total Lead HNO3 1 - 1L Plastic (ES) NO NATURAL ATTENUATION PARAMETERS / OBSERVATIONS / NOTES "Field Test Kit Results** Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:					,							
SAMPLE COLLECTION INFORMATION: Analysis Preservative Container Requirements Collected SW-846 6010B - Total Lead HNO3 1 - 1L Plastic ES NO NATURAL ATTENUATION PARAMETERS / OBSERVATIONS / NOTES "Field Test Kit Results" Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.: Signatore(s):	*											
Analysis Preservative Container Requirements Collected SW-846 6010B - Total Lead HNO3 1 - 1L Plastic (ES) NO NATURAL ATTENUATION PARAMETERS / OBSERVATIONS / NOTES "Field Test Kit Results*" Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:		ATION:	8 JUNE 1921 0			16.90						
SW-946 6010B - Total Lead HNO3 1 - 1L Plastic (ES) NO NATURAL ATTENUATION PARAMETERS / OBSERVATIONS / NOTES "Field Test Kit Results" Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:	walling the state of the state		Preser	vative		Container	Requireme	nts	Collected			
NATURAL ATTENUATION PARAMETERS / OBSERVATIONS / NOTES "Field Test Kit Results" Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:		ead	HN	О3				· -				
Field Test Kit Results Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:												
Field Test Kit Results Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:			ļ									
Field Test Kit Results Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:												
Field Test Kit Results Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:			-									
Field Test Kit Results Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:			<u> </u>									
Field Test Kit Results Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:		<u> </u>	1									
Field Test Kit Results Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:		·										
Field Test Kit Results Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:												
Field Test Kit Results Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:								•	-			
Dissolved Oxygen Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:	NATURAL ATTENUATION PARA	METERS / OB	SERVATIO	NS / NOTE	S				的数据:			
Ferrous Iron Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:					7 -1		. 1 .					
Hydrogen Sulfide Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.: Signature(s):			_		2100 1 THE	= 2001	مدامرا					
Carbon Dioxide Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.:			-									
Alkalinity Sulfide Circle if Applicable: MS/MSD Duplicate ID No.: Signature(s):			-									
Sulfide Circle if Applicable: MS/MSD Duplicate ID No.: Signature(s):			-									
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GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Project No.: [] Domestic Well Data [X] Monitoring Well Data [] Other Well Type: [] QA Sample Type:	NAS Pensacc	ola UST Sit	e 21		Sample Sample C.O.C. Type of [X] Lo	•	C. Odl		
SAMPLING DATA:	The same of the same		CERCENO.	HEALT PERSON					
Date: 5-9-07	Color	pН	S.C.	Temp.	Turbidity	DO	ORP	SWC	1
Time: 0942	Visual	Standard	m S/cm	°C	NTU	m g/l	m V	Time	
Method: کے سے کاری		6.71	66.7	23.91	4.2	0.33	-13	8.09	
PURGE DATA:									
Date: 5.9-0-	Volume	рН	S.C.	Temp. (C)	Turbidity	DO	ORP	Tim e	SW
Method: 60 How	1,02	6,64	68.2	24.13	23.7	0.54	2	0922	8.09
Monitor Reading (ppm):	5.0L	6.68	67.4	24.02	85	<i>(ن.۴0</i>	-(_e	0927	D.09
Well Casing Diameter & Material	3,00	6,70	668	23.88	3,5	0.33	- ų	0932	2.05
Type: 200 PUC	4.02	671	Clo.L	23,91	3.1	0.30	12	0437	8.02
Total Well Depth (TD): \ 3, \ 8	8.06	671	66.7	23,91	4.2	0,33	-13	0942	8,09
Static Water Level (WL): 5.04									
One Casing Volume(gal/L):									
Start Purge (hrs): 🕥 🦳									
End Purge (hrs): 0942									
Total Purge Time (min):									
Total Vol. Purged (gal/L):							,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
SAMPLE COLLECTION INFORM	ATION:								
Analysis		Preser	vative		Container I	Requireme	nts	Collected	
SW-846 6010B - Total Le	ad	HN	О3		1 - 1L F	Plastic		YES / NO	
<u> </u>									
		<u> </u>							
	 -								
									15
NATURAL ATTENUATION PARA	METERS / OB	SERVATIO	VIS / NOTE	SEZEZE			E 19 19		
Field Test Kit Results									
Dissolved Oxygen		_							
Ferrous Iron		•							
Hydrogen Sulfide		-							
Carbon Dioxide		-							
Alkalinity Sulfide		-							3.5
Circle if Applicable:	TO SECTION AND	in the			Signature(s):			
MS/MSD Duplicate ID No	.:				[//) ``	-		- 01	
					()				
TBD: To Be Determined				 ·	\sim			W1	



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Project Site		NASP Site 2				Sample	e ID No.:			
Project No.:		CTO 56 112	.G00583			Sample	Location:	Pen 21Mu	NSIR	
D						Sample		J.D. Spale	ding	
6.4	stic Well Data					C.O.C.				
	toring Well Data Well Type:						f Sample: ow Concent	tration		
	mple Type:						h Concentra			
						. na.				
SAMPLING DAT		Till Seed								
Date: 5-10-	07	Color	pН	S.C.	Temp.	Turbidity	DO	Salinity	Other	
Time: //20	D 111"	(Visual)	(S.U.)	(mS/cm)	(⁰ C)	(NTU)	(mg/l)	(%)		
PURGE DATA:	ow Peristaltic		6.64	79.7	23.22	7.58	0.00	0.0	A. Partherna	
	07		T _u		Tomas	Tb i alibu	50	T Callain.		
Date: 5-10		Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other	
	altic lowflow	Ø	4.71	72.8	23,49	388	1.14	0.0	250M4 Nin	
Monitor Reading		1.252	6.64	18.8	23.10	71.5	.08	0.0	250ML/min	
Well Casing Dia	meter & Material	1.875L	6.65	79.6	23.24	28.0	0,00	0.0	125mc/mmg-	
туре: <i>3/4</i> ″ Р	VC	2.04	6.64	79.7	2322	8.03	6.00	0.0	4100 min	
Total Well Depth	n (TD): 14.23	2.2L	6.64	79.7	2322	7.58	0.00	0.0	Licomy	
Static Water Lev	vel (WL): 5.95									
One Casing Vol	ume(gal/L): ⊾ 176 a∫									
Start Purge (hrs)): 1160									
End Purge (hrs):					<u> </u>					
	e (min): 20min					1		7		
Total Vol. Purge			1			7		 		
SAMPLE COLLECTION INFORMATION:										
	Analysis		Preser				lequirements	j.	Collected	
Tota	1 Lead		Vone		17		×			
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OBSERVATION		Turker be		KEEL L		APE - 3 STATE	1 1 1 1 1 1 1 1 1 1 1			
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12/1	10 preser-	4110	170	,	,, ,					
	V									
Circle if Applica	able:					Signature(s)):			
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Page / of / Sample ID No.: PEN216W3802 Project Site Name: NASP Site 21 Project No.: CTO 56 112G00583 Sample Location: Sampled By: Domestic Well Data C.O.C. No.: [X] Monitoring Well Data Type of Sample: [] Other Well Type: [X] Low Concentration [] QA Sample Type: [] High Concentration SAMPLING DATA: 5/10/07 Date: Color S.C. **Turbidity** DO pН Temp. Salinity Other 0950 Time: (Visual) (S.U.) (mS/cm) (°C) (NTU) (mg/l) (%) Method: /ov flow lear 23.99 34.4 5729 142 9,89 0,0 21 PURGE DATA: ORP 5/10/07 Date: Volume pΗ S.C. Temp. Turbidity DO Salinity Other 192 2455 0,0 Method: Monitor Reading (ppm): 24,09 0,0 Well Casing Diameter & Material 092 23.82 0.0 .06 Type: 1,25 23,64 0,0 092.7 26 Total Well Depth (TD): 💫 🐊 🔿 0935 5.29 23 0.0 10.01 23.99 Static Water Level (WL): 8.6 0947 0.0 One Casing Volume(gal)L): 🚕 Start Purge (hrs): 🕖 90 6 End Purge (hrs): 094 Total Purge Time (min): Total Vol. Purged (gal/L): SAMPLE COLLECTION INFORMATION: Analysis Preservative **Container Requirements** Collected HC/ TRPH HC/ **OBSERVATIONS / NOTES:** * Turbility increased on last reading, sampled 20850 Circle if Applicable: Signature(s): _ MS/MSD Duplicate ID No.:



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of_

Project Site Name: Project No.: [] Domestic Well Data [X] Monitoring Well Data [] Other Well Type: [] QA Sample Type:	NASP Site 2 CTO 56 112				Sample Sample Sample C.O.C. Type of [X] Lo	MW41	GW4102	
SAMPLING DATA:			314T 3PY		A STATE OF	a live division		Substitution (Substitution
Date: 5-7-07	Color	pН	s.c.	Temp.	Turbidity	DO	Salinity	Other
Time: 15:17	(Visual)	(S.U.)	(mS/cm)	(⁰ C)	(NTU)	(mg/l)	(%)	
Method: low flow	2014404 WINDOWS TO A STATE OF THE STATE OF T	6.24	0.421	23.46	11.2	10.58	0.0	
PURGE DATA:								
Date: 5/7/07	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	-Other time
Method: low flow		6.46	0.527	24.85	43,7	11,04	0.0	14:52
Monitor Reading (ppm):			0.441	23.85	24.0	11.41	0.0	15:00
Well Casing Diameter & Material		6.31		23,54	14.2	10.83	0.0	15:08
Type: 1.25" PVC		6.24	0.421	23.46	11.2	10.58	0.0	15:15
Total Well Depth (TD): 12.5								
Static Water Level (WL): 7.0								
One Casing Volume(gal/L): 0.33								
Start Purge (hrs): 1452						35		
End Purge (hrs): \5\5								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								
SAMPLE COLLECTION INFORMA	TION:	31.	Et pic		が事権に		· 持一個皮質图 = /	23 mm
Analysis		Preser			Container R			Collected
Total Pb		HV	103		1 x 2	LoomL	plastic	×
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OBSERVATIONS / NOTES:								
0.06 x 5.5 =				 				
0.06 x 5.5 =								
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Circle if Applicable:					Signature(s):		
MS/MSD Duplicate ID No.	:		***				, ,	
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Tetra Tech NUS, Inc.

Project Site Name: Project No.: [] Domestic Well Data [X] Monitoring Well Da [] Other Well Type: [] QA Sample Type:	NAS Pensace	ola UST Sit	e 21		Sample ID No.: Sample Location: Sampled By: C.O.C. No.: Type of Sample: [X] Low Concentration [] High Concentration				
SAMPLING DATA:									
Date: 5-7-07	Color	рН	s.c.	Temp.	Turbidity	DO	ORP		1
Time: 1607	Visual	Standard	1	°C '	NTU	mg/l	m V	Time	L
Method: Low +/		4.51	27.3	22.5	15.7	2.33	61	1607]
PURGE DATA:									
Date: 5-1-07	Volume	pН	s.c.	Temp. (C)	Turbidity	DO	ORP	Time	5
Method: (のいん)	1.5	6.58	268	27.5	23.3	298	62	1552	7
Monitor Reading (ppm):	3.0	6.55	28.4	22.5	30,7	298	59	1557	17,
Well Casing Diameter & Material	4.5	6.52	27,4	22.5	22,5	2.55	59	1602	12
Type: 1,25" PUC	4.0	6,51	27.3	22.5	15.7	2.33	61	1607	17.
Total Well Depth (TD): 12、5つ					1				1
Static Water Level (WL):7,69									1
One Casing Volume(ga/D)		<u> </u>		•			,		1
Start Purge (hrs): \5\17	-	 						<u> </u>	1
End Purge (hrs): \60	-				-				1
Total Purge Time (min):		 			<u> </u>				ł
									ł
Total Vol. Purged (gal/L): SAMPLE COLLECTION INFORM	ATION	Senior Managery	sector.						
Analysis	IATION.	Preser	vativo	Mar Waller	Container	Requireme	nte	Collected	ı
SW-846 6010B - Total Le	ead	HNO3			1 - 14-1	/ES NO	1_		
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		<u> </u>						<u>.</u>	Ł
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NATURAL ATTENUATION PARA	METERS/OB	SERVATIO	NS / NOTE	S				A STATE OF]
Field Test Kit Results				n	15 fe =	200-1	/21		ı
Dissolved Oxygen		_		100	(c' ve -		1-4-		
Ferrous Iron		_							ı
Hydrogen Sulfide Carbon Dioxide		_							
Alkalinity		_							
Sulfide		-							
Circle if Applicable:					Signature	(s):			1
MS/MSD Duplicate ID No	o.:				10	2			
					CFA	-	-80		l
TBD: To Be Determined					- 0				ł

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Tt	Tetra Tech NUS,	Inc.

Project Site Name: Project No.: [] Domestic Well Data [X] Monitoring Well Data	NAS Pensac	ola UST Sit	e 21	- -	Sample Sample C.O.C.	No.:		GW4304	
[] Other Well Type: [] QA Sample Type:			Type of Sample: [X] Low Concentration [] High Concentration						
SAMPLING DATA:							6.21.20		
Date: 5-9-07	Color	рH	s.c.	Temp.	Turbidity	DO	ORP		7
Time: 1650	Visual	Standard		°C	NTU	m g/l	m V	Time	4
Method: Log Alaman PURGE DATA:		6.74	0.145	23.19	1.31	0.00	-348	1650	10
Date: 5-9-07	Volume	T "u	s.c.	Tomb (C)	Tunkiditu	DO	l opp	Time a	SUL
Method: (ov flov	1,02	pH (a)	0,146	7emp. (C)	Turbidity	DO S	ORP	Time	851
	30				40.7	6 238	-303	1622	8.51
Monitor Reading (ppm): Well Casing Diameter & Material	4.0	6.82	0.147	23.31	10.21	CCD	-340	1632	251
Type: 1.25" PUC		6.80	0.147		4.41	60.0	-341	1637	_
Total Well Depth (TD): 1264	6.0	6.74	0.145	23.19	1,31	0.00	348	1650	8.51
-		 						<u> </u>	-
Static Water Level (WL): \$.43		1							-
One Casing Volume(gal/L):		<u> </u>							-
Start Purge (hrs): \617		-						ļ	4
End Purge (hrs): \650		<u> </u>			ļ				4
Total Purge Time (min):		<u> </u>							-1
Total Vol. Purged (gal/L):									
SAMPLE COLLECTION INFORM	ATION:				DIVIDADAS.				
Analysis		Preser		· · · · · · · · · · · · · · · · · · ·	Container	Collected	-		
SW-846 6010B - Total Le	au	HN	-		211	YES/NO	-		
TRPH		HC	(2 X 14	Α,		1	
DIEX		Ho			3 140		le vis	(2	1
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NATURAL ATTENUATION PARA	METERS/OB	SERVATIO	NS / NOTE	S	n (a		tie inge		
Field Test Kit Results									1
Dissolved Oxygen		_							1
Ferrous Iron		-							1
Hydrogen Sulfide		-							1
Carbon Dioxide Alkalinity		-							1
Sulfide		-							1
Circle if Applicable:		Maria de Co			Signature(s):			1
MS/MSD Duplicate ID No	.:								1
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TBD: To Be Determined	15.00.1	_							1

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Project Site Name: Project No.: [] Domestic Well Data [X] Monitoring Well Data [] Other Well Type: [] QA Sample Type:	NAS Pensac	ola UST Site	e 21		Sample Sample C.O.C. Type of [X] Lo	No.: f Sample: ow Concen	ation: MW44 : C. Odom		
SAMPLING DATA:									B
Date: 5-7-7	Color	pH	s.c.	Temp.	Turbidity	DO	ORP	STATE OF STA	
Time: (053)	Visual	Standard	1	°C	NTU	mg/l	m V	Time	
Method: lastla		6.72	46.8	21.9	8.6	2.11	36	1053	1
PURGE DATA:									Ž.
Date: 5-7-9-9	Volume	pН	S.C.	Temp. (C)	Turbidity	DO	ORP	Time	546
Method: (ou flow	1.0	6,79	42.3	22.0	17,0	2,25	36	1043	
Monitor Reading (ppm):	2.0	6.73	47.4	21.9	14.7	2.(4	35	1098	6.76
Well Casing Diameter & Material	3,0	Ge 72	468	21.9	8.4	2.11	36	1053	6,74
Type: (25" PVC	77 0		W.A					1,3,7	1
Total Well Depth (TD): \3,20							,		1
Static Water Level (WL):6,72		1						+	1
One Casing Volume(gal(1)) (4)		 							1
Start Purge (hrs): 103 8			Male and						1
		 			1			+	· Shark
End Purge (hrs): 1053			Cities 1					 	-
Total Purge Time (min):			MARKET TO THE STREET					ļ	-
Total Vol. Purged (gal/L): SAMPLE COLLECTION INFORM	ATION	S-1251-02-0-0-1-1					Samuel Con Marie Con	: 1000, 000 (1000, 00 + 00	9
	ATION:	Dungan			O-marine u	Da analisa na a		0-11-4-4	4
Analysis SW-846 6010B - Total Le	and .	Preser			Container 20.	Requiremen	nts	Collected (YES/NO	-
CVV 040 CO TOD TOTAL EC	-au	1111	00		1 - 4 - 1	riastic		TESTAL	100000
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								+	1
NATURAL ATTENUATION PARA	METERS / OF	SERVATIO	NS / NOTE	SABARA					
Field Test Kit Results				0	(1
Dissolved Oxygen		_		460	12/==	20026	lan		
Ferrous iron		-							
Hydrogen Sulfide		-							
Carbon Dioxide									
Alkalinity Sulfide		-							
Circle if Applicable:					Signature	(s):		104 - 9191 V - 11(18	-
MS/MSD Duplicate ID No	·.:				100	0	$\overline{}$		
TBD: To Be Determined									
ibb. To be betellilled									



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Project Site Name: Project No.: [] Domestic Well Data [] Monitoring Well Data [] Other Well Type: [] QA Sample Type:		ite 2	×583		Sample Sample C.O.C. Type of	•	T.D.Sozi	R
SAMPLING DATA:			Antica Activity		Connactive Constitution	ATELOPOGE KAROURI GEOGRAFI SELECTION OF THE SELECTION OF		
Date: 5-10-07	Color	рН	s.c.	Temp.	Turbidity	DO	Salinity	Other
Time: 1630	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	l
Method: Louflow Peristaltu	c. Clear	6.67	61.1	23.22	3,29	0.00	6.0	
PURGE DATA:				ARTHUR CONSTRUCTOR	namena separate a Socialisti e de la como de la como de la como de la como de la como de la como de la como de la como de la como	ACCURACION DE LA COMPANION DE		
Date: 5-10-07	Volume	рН	s.c.	Temp.	Turbidity	DO	Salinity	Other
Method: Low Flow Peristal	hd	652	51.0	23.52	210.0	1.09	6,0	
Monitor Reading (ppm):				23.25	97.7	0,00	0.0	
Well Casing Diameter & Material		6.69	61.0	23.27	10.18	6,00	0.0	
Type: 3/4/ PVC		6.67	61.1	23,22	3.29	0.00	0.0	
Total Well Depth (TD): \4,4() 	1	1	- JI	1	1		
Static Water Level (WL):	4=#	†	†	 	 	 	+	
One Casing Volume(gal/L):	- Total	†	 		1	+		
Start Purge (hrs): ico	+	 	 	 	 	†	 	
End Purge (hrs): 1630	+	+	 	 	 		+	
	+	+		 	 	+	+	
Total Vol. Purged (gal/L):	+	+	+		 	 	+	
Total Vol. Purged (gal/L): SAMPLE COLLECTION INFORM	ATION: SEESTER	ALBERT SECTION	राबराइप्राथर इंदेरिट.	***************************************		onerskielikkiiskiiskii	menterensensenskipping	MINERAL SERVICE SERVICES
Analysis	A HON-1952 Entrient	Presen	Significations	######################################	Container R	Requirements	ASSESSEDANCES CO.	Collected
BYEX		itc			3x40m2		Onecieu	
PAH		Cool	4°C		3240m2 27216 Av		9	
TRPH		HC			2 7 7 L An			Ø
Total lead		HNC			1125ml			×
			5			7.		
:		↓	'	<u> </u>				
		 		 				
		+		 				
OBSERVATIONS / NOTES:	SECTORER ENGINEERING							
Who was a second of the second	EMACANESCO NECTORIAL	Sisting and the second of	Ellicitoto aum.	White Hiretten Pacien	i i i i i i i i i i i i i i i i i i i	deli fortilet tiatestresen a	ABBASSII Nebbassacca	ESTERNISH Thickburnstoners
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Project Site Name: Project No.: CTO 56 112G00583 [] Domestic Well Data [X] Monitoring Well Data [] Other Well Type: [] QA Sample Type: SAMPLING DATA: Date: 5/9/07 Color pH S.C. Temp.						Sample ID No.: PENDIGN 5306 Sample Location: MW \$3 Sampled By: C.O.C. No.: Type of Sample: [X] Low Concentration [] High Concentration				
Date: 5	:35	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other ORP	
Method: /	ow flow	(Visual)	(S.U.)	(mS/cm)	23.67	(NTU)	(mg/l) 12.34	(%) 0.0	-126	
PURGE DATA:	ow Flow	1	16.00	10,201	20.67	6.07	14.21	0.0	-126	
Date: 5/	9/07	Volume		s.c.	Tomp	Turbidity	ро	Calinity	_Other oil P	
- 7	1/1/		pH	 	Temp.	+		Salinity		
Method: ไฮเ		1520	6.82	0.245	25,79	17.0	12.82	0.0	-61	
Monitor Reading		1525	6.61	0.269		8.96	12.81	0.0	-95	
	meter & Material	1530	6.66		23.83	7.56	12.64	0.0	-120	
Type:	puc	1535	6.66	0.261	23.67	6.61	12.34	0.0	-126	
Total Well Depth	n (TD): $j\lambda, \mathcal{O}9$									
Static Water Lev	vel (WL): 6, 89									
One Casing Vol	ume(gal/L): 31									
Start Purge (hrs										
End Purge (hrs)			1	1						
Total Purge Tim				 						
Total Vol. Purge		<u> </u>								
	ECTION INFORMA	TION				201			AT US STEWART THE THE SELECTION OF STREET	
	Analysis		Preser	vative		Container B	equirements	Jan Jan Standberg	Collected	
	PAH		-			2 × 1	L Ant	10 (X	
7	REH		HC	Ξ.		2 2	IL Amb	ì	X	
Ę	STEX		HC					ia	Х	
T	otal Pb			10,			200mh	plastic	×	
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OBSERVATION	IC (NOTEC:				VI 2					
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Page / of / Project Site Name: NASP Site 21 Sample ID No.: PENAIGW5107 Project No.: Sample Location: CTO 56 112G00583 Sampled By: C.O.C. No.: [] Domestic Well Data [X] Monitoring Well Data Type of Sample: [] Other Well Type: [X] Low Concentration [] QA Sample Type: [] High Concentration SAMPLING DATA: ORP Turbidity Date: 3710/07 Color S.C. DO Salinity pH Temp. Other (NTU) Time: (Visual) (S.U.) (mS/cm) (^{0}C) (mg/l) (%) Method: 14 lear 535 0,0 0.00 **PURGE DATA:** 10/0 Date: Volume рН S.C. Temp. Turbidity DO Salinity Other 54.3 0.33 000 flow 555 23.00 -44 Method: low 0,00 Monitor Reading (ppm): 0,0 Well Casing Diameter & Material 10,38 0,00 0,0 PUC 0.00 Type: Total Well Depth (TD): 12,60 Static Water Level (WL): 7./3 One Casing Volume(L): Start Purge (hrs): 0746 Total Purge Time (min): 🏻 🧳 Total Vol. Purged (gal/L): SAMPLE COLLECTION INFORMATION: Analysis **Preservative Container Requirements** Collected BTEX TRPH 40 **OBSERVATIONS / NOTES:** Circle if Applicable: Signature(s): MS/MSD **Duplicate ID No.:**



Page / of /

Project Site Name: Project No.: [] Domestic Well Data [X] Monitoring Well Data	NASP Site 2 CTO 56 112				Sample ID No.: PENAIGW 5202 Sample Location: Site 2 Sampled By: TH C.O.C. No.: Type of Sample:			
[] Other Well Type: [] QA Sample Type:		· · · · · · · · · · · · · · · · · · ·			[X] Lo	w Concent n Concentra		
SAMPLING DATA:								
Date: 5/10/07	Color	pН	s.c.	Temp.	Turbidity	DO	Salinity	-Other-
Time: 0820	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	ORP
Method: low flow PURGE DATA:	clear	5.69	0.310	22.31	1.74	11.36	0.0	-57
Date: 5/10/07	Volume	рН	s.c.	Temp.	Turbidity	DO	Salinity	_Other ORP
Method: low flow	0755	5.34	0.427	22.73	55.4	9.95	0.0	32
Monitor Reading (ppm):	0800		0.323		10.83	10.54	0.0	-17
Well Casing Diameter & Material	0805	5.61	0.318		4.93	5.14	0.0	-44
Type: 1" PVC	0810	5.65	0.312	22.39	2.90	10.65	0.0	-52
Total Well Depth (TD): 12.43	0815	5.69	0.310	22.31	1.74	11.36	0.0	-5>
Static Water Level (WL): 8.25								
One Casing Volume(gal/L): 0,25								
Start Purge (hrs): 0755								
End Purge (hrs): 08/5								
Total Purge Time (min): $2\mathcal{O}$			***************************************					
Total Vol. Purged (gal/L):								
SAMPLE COLLECTION INFORMA	ATION:							
Analysis BTF×		Preser			Container R	equirements	Z > 3	Collected
DIEX		//	_/	***************************************	40 ml	VOA	-> 5	
PAH				10	- Amb	enx	2	
70.01/							_	
TRPH		H	2/	16	Ambe	~ ~ ~	2	
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	391910							
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OBSERVATIONS / NOTES:			Maleuri Cott	Lator (Little	4.0		THE KILLSON	
12343	Δ Δ/	1. 1		A				
	0.00	X 4	1.18 -	0,25				
-8.25								
4.18								
		2230						
Circle if Applicable:					Signature(s):		
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Sample ID No.: Project Site Name: NASP Site 21 Project No.: Sample Location: CTO 56 112G00583 Sampled By: [] Domestic Well Data C.O.C. No.: [X] Monitoring Well Data Type of Sample: [] Other Well Type: [X] Low Concentration ∏ High Concentration [] QA Sample Type: SAMPLING DATA: Date: Color S.C. Temp. **Turbidity** DO Salinity Other pΗ (^{0}C) Time: 1302-14/9 (S.U.) (mS/cm) (NTU) (Visual) (mg/l) (%) Method: 37.9 ,610 3.55 169 0.0 **PURGE DATA:** ORP 5/10/07 Turbidity Date: Volume S.C. DQ Salinity Other pН Temp. 581 25,29 239 0.0 Method: -95 Monitor Reading (ppm): 🕖 12 6.58 ,585 24.8 154 89 1.0 -146 Well Casing Diameter & Material 2450 0.0 15 ، م کا Type: JU PVC 25.02 0.0 Total Well Depth (TD): 19,39 146 30 24.84 08. 0.0 Static Water Level (WL): 🌠 10 5.39 11.09 0.0 1140 6.90 One Casing Volume (gal/L): 1150 6.94 25.36 11.67 0.0 601 73 -162 1205 6.98 Start Purge (hrs): .598 25.59 62. 12,30 -165 n.0 1220 7.00 603 26.03 2.12 End Purge (hrs): 0.0 26.01 1245 4.03 .599 38.0 10.19 0.0 168 Total Purge Time (min): 169 Total Vol. Purged (gal/L): 1255 7.05 25.97 37. 13.55 0.0 SAMPLE COLLECTION INFORMATION: **Analysis Preservative Container Requirements** Collected Total PL 200 2 None **OBSERVATIONS / NOTES:** * No preservative, indicated on chain of custody Circle if Applicable: Signature(s): MS/MSD **Duplicate ID No.:**



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Project Site Name: Project No.: [] Domestic Well Data	ctic Well Data toring Well Data						Sample ID No.: Sample Location: Sampled By: C.O.C. No.: Type of Sample:			
[X] Monitoring Well Dat [] Other Well Type: [] QA Sample Type:	a 	-			_ (X) Lo	[X] Low Concentration [] High Concentration				
SAMPLING DATA;		Sp. Hall				M. M. Harris	11.143			
Date: 5/8/07	Color	pН	S.C.	Temp.	Turbidity	DO	Salinity	Other		
Time: 15:05	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	 		
Method: New Show PURGE DATA:		5.33	0.256	24.06	10.77	11.78	0.0			
Date: 5/8/07	Volume	рН	s.c.	Temp.	Turbidity	DO	Salinity	_Other_ton		
Method: low Slow Peristalti		5.88		26.48	30.1	12.77	0.0	14:33		
Monitor Reading (ppm):		5.50	19.257	24,23	30.4	12.25	0.0	14:38		
Well Casing Diameter & Material		5.35	0.257	24.12	18.4	12.30	0.0	14:48		
Type:		 	0.256	24.16	13.8	5,33	0.0	14:55		
Total Well Depth (TD): /2,50	,	1	0.256	24.06	10.77	11.78	0.0	15:02		
Static Water Level (WL): 7,30		3.33	0.200	27,00	10.77	11. / 0	10.0	113,02		
(^^		 	<u> </u>		<u> </u>			 		
One Casing Volume(gal/L): , , , , , , , , , , , , , , , , , , ,	4	 	 				+	 		
								 		
End Purge (hrs): \502	+		 	<u> </u>			+			
Total Purge Time (min): Total Vol. Purged (gal/L):	+	 	 					 		
SAMPLE COLLECTION INFORM	ATION:	7 - 38,0 m								
Analysis		Preser	vative		Container R	equirements	}	Collected		
HA9		Preservative			2 ×	×				
TRPH		Hc	λ		2 ×	<u> </u>	Amber Amber	X		
BTEX		H	4	€.	3 >	x 40mL	Laix	*		
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Project Site Name: NASP Site 21 Sample ID No.: Project No.: Sample Location: CTO 56 112G00583 Sampled By: C.O.C. No.: [] Domestic Well Data [X] Monitoring Well Data Type of Sample: [] Other Well Type: [X] Low Concentration ☐ High Concentration [] QA Sample Type: SAMPLING DATA: Date: S.C. Temp. **Turbidity** DO Salinity Other Color pН (S.U.) Time: 200 (Visual) (mS/cm) (°C) (NTU) (mg/l) (%) Method: 0.535 9 1.2 **PURGE DATA:** 5/8/0 other time Date: Volume S.C. Temp. **Turbidity** DO Salinity 1130 577 920 Method: low Flow 60 0.0 Monitor Reading (ppm): 0.0 1135 Well Casing Diameter & Material 0.0 1140 1/4" PVC_ 0,0 1145 Total Well Depth (TD): /4,45 0,0 1150 Static Water Level (WL): 80719 1200 0.0 One Casing Volume(gal/L): Start Purge (hrs): 1130 End Purge (hrs): 1200 Total Purge Time (min): Total Vol. Purged (gal/L): SAMPLE COLLECTION INFORMATION: **Analysis Preservative Container Requirements** Collected Ambe (X HC Amber X BTEX 40 ml **OBSERVATIONS / NOTES:** Signature(s): Circle if Applicable: Halfhol MS/MSD **Duplicate ID No.:**



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[X] Monit [] Other \		NASP Site 2 CTO 56 112				Sample Sample Sample C.O.C. I Type of [X] Lo	10201		
SAMPLING DAT	TA:								
Date: 5 %-	07	Color	рН	S.C.	Temp.	Turbidity	DO	-Salinity	Other
Time: 1440)	(Visual)	(S.U.)	(mS/cm)	(⁰ C)	(NTU)	(mg/l)	(%)	
Method: Lo-	1-le		6.23	33.5	23.05	18.2	0.00	-168	3
PURGE DATA:		population.						084	<u> </u>
Date: Ś-ゟ-	7	Volume	pН	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: しゅい	7	1.0	6.23	35.9	23.34	23.7	1,27	-139	1415
Monitor Reading	(ppm):	2,0	6.27	363	23.20	૮૦ .સ	0,19	-153	1420
	meter & Material	<u>ک</u> ری	6.25	34.4	23.05	19.2	000	-163	1425
Type: り.75 '	PUC	4.0	6.23	33.3	23.05	14.2	C6.0	-168	1430
Total Well Depth	-								
Static Water Lev				150-300				-	
	me(gal/L): المارين	e e	1						
Start Purge (hrs)									
Terrer Folkish			1	-		5) #			
End Purge (hrs):		-			,	i i			
Total Purge Time			-						
Total Vol. Purge			<u> </u>						
	ECTION INFORMA	HON:	T B			Osmania su Di			Callested
BAH	Analysis		Preser	vative		Container Re			Collected
10014			H	$\overline{}$		2×16	Ambe (-
BIE	· · · · · ·		17	7		3 140			4
Tatal	Pb		140	07			sombl.	264	Ci
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(2			Tra livings		7,075,000				
	n ta n Paranci		- 						92
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OBSERVATION	S / NOTES:		.						
OBOLITATION	071101L0.					/			
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Page___ of _ Sample ID No.: PEWZ16W630 Project Site Name: NASP Site 21 Sample Location: Project No.: CTO 56 112G00583 Sampled By: C.O.C. No.: Domestic Well Data Type of Sample: [X] Monitoring Well Data [X] Low Concentration [] Other Well Type: [] High Concentration [] QA Sample Type: SAMPLING DATA: Salinity **Turbidity** Other Date: 5-8-01 Color S.C. Temp. DO pН 089 (mS/**d**n) (°C) (NTU) (mg/l) Time: (Visual) (S.U.) 30.8 22.71 Method: 6.50 -227 0.41 **PURGE DATA:** Other Volume pН Turbidity Salinity Date: フーガータン S.C. Temp. DQ 27.57 37.9 2.25 30.5 -205 at! 1110 Method: しょそう 22.71 36.1 -227 130 Monitor Reading (ppm): 5,25 0.52 31.0 30.8 2224 36.3 75 6.49 0.45 -227 140 Well Casing Diameter & Material Type: O.75" 7.25 650 30.8 22.71 34.7 0.41 -227 1145 014.47 Total Well Depth (TD): 12.52 Static Water Level (WL): 🚄 🕻 🥻 One Casing Volume(ga(1) 0.56 Start Purge (hrs): 1055 End Purge (hrs): 1150 Total Purge Time (min): Total Vol. Purged (gal/L): SAMPLE COLLECTION INFORMATION: **Analysis Preservative Container Requirements** Collected PAHO 2 ILL Mal 2 KIL Anber TRAIT HCC HNO3 Total PB 1 K200nlyphs. HC(DIEY **OBSERVATIONS / NOTES:** Flow rate = 150nymu Circle if Applicable: Signature(s): MS/MSD **Duplicate ID No.:**



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Sample ID No.: PENZIGUE401 Project Site Name: NASP Site 21 Project No.: Sample Location: CTO 56 112G00583 Sampled By: C. Od a C.O.C. No.: □ Domestic Well Data [X] Monitoring Well Data Type of Sample: [] Other Well Type: [X] Low Concentration [] QA Sample Type: [] High Concentration SAMPLING DATA: 5-8-07 Turbidity Salinity S.C. Temp. Color pΗ DO Other 1000 Time: (mS/gm) (°C) (NTU) (Visual) (S.U.) (mg/l) 34 26.D 22.75 33.2 0.71 PURGE DATA: Date: 5-8-07 Salinity dispere Volume Turbidity DO нα S.C. Temp. 22.12 44.9 -179 Method:しゅいみ 48 30.3 O.05 0840 55 30,1 27-20 40.8 CO. A -195 0099 2.0 Monitor Reading (ppm): 👔 Well Casing Diameter & Material 41.0 29,1 22,21 37-6 -220 600 388C Type: の,75" PUC 6.4C X 27.3 2727 0.00 - 522 363 12.0 Total Well Depth (TD): 14.45 640 2.4 72,51 34.O 0.79 -256 0939 Static Water Level (WL): 7.09 26.0 22,75 38 33.7 0.71 のうち -255 One Casing Volume(ga(1).90,55 Start Purge (hrs): 🔿 🗟 🥇 End Purge (hrs): 0955 Total Purge Time (min): Total Vol. Purged (gal/L): SAMPLE COLLECTION INFORMATION: **Analysis Preservative Container Requirements** Collected HCI ZILL Haber 2x1L Ambor U PAH UDE & BTEN 3×40 ml c/ass via CCUM x 200 me plastin **OBSERVATIONS / NOTES:** Flas rolo= 200 nil mo Circle if Applicable: 1 Sed MS/MSD **Duplicate ID No.:** PEN216W6401



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Project Site Name: NASP Site 21 Sample ID No.: CTO 56 112G00583 Project No.: Sample Location: Sampled By: C.O.C. No.: [] Domestic Well Data [X] Monitoring Well Data Type of Sample: [] Other Well Type: [X] Low Concentration [] QA Sample Type: [] High Concentration SAMPLING DATA: 5-8-07 Date: S.C. **Turbidity** DO Salinity Color рH Temp. Other 09:35 (^{0}C) Time: (S.U.) (mS/cm) (NTU) (Visual) (mg/l) (%) Method: lo₩ flow 6.04 0.387 3.44 0.0 **PURGE DATA:** 5-8-07 Date: Volume Turbidity -Other tine pН S.C. Temp. DO Salinity Method: low Plas 5.97 0.578 22.12 80.0 71 0.0 08:48 Monitor Reading (ppm): 24 0.469 21 46.5 8 0.0 118:53 9.79 09:10 Well Casing Diameter & Material 0.0 09:20 .69 0.0 0,401 3.44 Total Well Depth (TD): ЦЦ. [5 21.55 0.0 09:35 0.387 Static Water Level (WL): 7, 45 One Casing Volume(gal/L): 0.134 Start Purge (hrs): *0* を 4 名 End Purge (hrs): $\mathcal{O}935$ Total Purge Time (min): Total Vol. Purged (ダネル): 🦖 🖔 SAMPLE COLLECTION INFORMATION: Analysis **Preservative Container Requirements** Collected PA H Amber X HC. X × 40ml HUI × **OBSERVATIONS / NOTES:** 6.7 = 0.134 Circle if Applicable: Signature(s): J. Kalflill MS/MSD **Duplicate ID No.:**



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[X] Monito	Name: itic Well Data oring Well Data Vell Type: mple Type:	CTO 56 112	NASP Site 21 CTO 56 112G00583				ID No.: Location: d By: No.: Sample: w Concent		
SAMPLING DAT	Ά.		illa villa objev					n Badosin -	
Date: 5-8-		Color	pН	s.c.	Temp.	Turbidity	DO	Salinity	Other
Time: 1100		(Visual)	(S.U.)	(mS/cm)	(⁰ C)	(NTU)	(mg/l)	(%)	Outer
Method: (ow		(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	6.68	0,613		11.8	11.29	0,0	
PURGE DATA:									
Date: 5/8/	07	Volume	pН	s.c.	Temp.	Turbidity	DO	Salinity	Other Time
2 (1 (2) (2) (2) (3)	Flow		6.68		23.65	59.7	1.92	0.0	10:35
Monitor Reading			10.72	100	22.45	14.6	4.07	0.0	10:45
Well Casing Diar		 	6.71	0.623	323	13.1	10.96	0.0	10:50
Type:	Heler a watera		6.68	0.613	100g 100 _m	11.8	11.29	0.0	
	(TD): 14.25		0.00	0.012	22011	1,0	11.2	0.0	11:00
					\vdash	100			
Static Water Lev		 	+	 			ř.	 	
	me(gal/L): 0.133	 		 	\vdash	-		├──	
Start Purge (hrs)	1.0000			 				 	
End Purge (hrs):				 					
Total Purge Time		₩		 				 	50 W 8 W
Total Vol. Purged	MANAGEMENT OF THE PARTY OF THE								
	Analysis	ITION:	Dragge			Otelman D			O-H-stod
	Analysis PAH		Preser	vative	3007/1906/04	Container Re			Collected
	TRPH		1/2	<u>در</u>		2 x		Imber Imber	×
~~~	BTEX			<u>u\</u>		5 ×	40 mL	Vial	×
	D I DA		<del>  "</del>	<u> </u>	933		101/11~	Ayer	
		2-272-2-3						20311	
45									
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OBSERVATIONS	e / NOTES:								
							250255000000000000000000000000000000000		
0.02 ×	6.65= 0.1	133							
VN.125									
-1.6									
6.65 Circle if Applica	LIA,			ARREST KALIFOR KASA		Clanaturole	1.		
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[X] Monit [] Other \		NASP Site 2' CTO 56 1120				Sample Sample C.O.C. I Type of [X] Lo	546 <del>7</del> 01		
SAMPLING DAT	ſA:			i i i i i i i i i i i i i i i i i i i					
Date: ダーターC	<u>کی</u>	Color	рΗ	S.C.	Temp.	Turbidity	DO	<b>3000</b>	Other
Time: <b>\5</b> 5つ	+	(Visual)	(S.U.)	(mS/gm)	( ⁰ C)	(NTU)	(mg/l)	Q#\	
Method: (می	بالى		7.12	45.4	23.95	17.6	0.0	-243	
PURGE DATA:									
Date: 5-9-1	27	Volume	pН	s.c.	Temp.	Turbidity	DO	Sailinity	Other
Method: しょい	s +(o-	1.06	201	45.7	23.83	148	1.45	-244	1430
Monitor Reading	(ppm):	3.06	7,12	45.0	24.53	65,2	0.24	<i>₹</i> 5°(	1440
	meter & Material	5.06	7.13	45.5	23,75	38.1	6.67	-264	1450
_	" PVC	206		44.8	24,12	27,6	0,48	-261	1500
*	(TD): 14.38	9.06	7,13	45.7	23.70	26,3	0.00	254	150
			7,17	45.3		21.0	Î		
	vel (WL): 638	13.X	<del></del>	<del>1                                    </del>	23.75		0.62	-254	1530
-	ume(ga(L))9.6(	12,0C	7.14	45.3	23.97	14.9	0.00	-250	1540
Start Purge (hrs)		16:04	7.13	45.4	24,95	18.3	0.00	-246	1542
End Purge (hrs):	1550	17.06	7,12	45.4	23,95	17.6	0.0	-243	1550
Total Purge Time		<u> </u>		$ldsymbol{f eta}$					
Total Vol. Purge		<u>                                      </u>	<u> </u>	<u>                                      </u>	<u> </u>	<u> </u>	<u> </u>		
SAMPLE COLL	ECTION INFORMA	TION:		o vov	William States	THE PROPERTY OF			
7 7 7	Analysis		Preser	<del></del>	<del>†                                      </del>		equirements		Collected
total P	<u>b</u>		HW.	<u>03</u>	1	Y 2002	I pland.	,(	(
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Project Site Name: Project No.:	NASP Site 2				Sample	Location:	Penn21	
i Toject No	C10 56 112	G00565			Sample		MW68 J.DS.	
[] Domestic Well Data					C.O.C. No.:			amo / one
[X] Monitoring Well Da	ta				Type of	Sample:		
[] Other Well Type:						w Concenti		
[] QA Sample Type:					. [] High	n Concentra	ation	
SAMPLING DATA:								
Date: 5 9-27	Color	pН	S.C.	Temp.	Turbidity	DO	Salinity	Other
Time: 1409	(Visual)	(S.U.)	(mS/m)	( ⁰ C)	(NTU)	(mg/l)	(%)	
Method: (ロッナ)ー		6.86	507	22.86	14.1	0.00	-297	
PURGE DATA:							- CO	
Date: 5-9-07	Volume	pН	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peri Staltic Low flow	125m/m	6.83	53.9	2352	791.0	5.16		
Monitor Reading (ppm):	1350	6.83	52,7	22.67	320.0	<i>•3</i> 6		1335
Well Casing Diameter & Material		6.95	51.3	77.6X	19.7	00 B	-271	1350
Type: 3/4 PVC	3,125	687	>0-X	25.86	14.2	0.00	-245	1355
Total Well Depth (TD): 14.43	3.75	6.86	50.7	72.96	14.1	000	~294	1400
Static Water Level (WL): 8.04		- 00						7,100
One Casing Volume(gal/L):						3 1/3 1/3		***
Start Purge (hrs): 1330	1					- 112		
End Purge (hrs): イスタン	+							
	+	1						-
Total Purge Time (min): 39	+						11272	3399
Total Vol. Purged (gal化) ろっつら SAMPLE COLLECTION INFORM	IATION							
Analysis	ATION:	Preser			Container R	oguirom ente		Collected
total Pb		HW		1	12002	/ /a/a I		(e)
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Project Site		NASP Site 2				Sample	ID No.:	PENSIC	5~6901		
Project No.:		CTO 56 112	G00583			Sample	υÇ ς				
[] Domes	stic Well Data					Sampled By: C.O.C. No.:					
	toring Well Data	1				Type of Sample:					
	Well Type:	•				[X] Low Concentration					
	mple Type:						n Concentra				
SAMPLING DA	TA:				200						
	9-07	Color	рH	S.C.	Temp.	Turbidity	DO	Salinity	Other-		
Time: / G		(Visual)	(S.U.)	(mS/cm)	( ⁰ C)	(NTU)	(mg/l)	(%)	ORP		
Method: L	1160		6.95	.275	22.37	42.4	0.84	0.0	-165		
PURGE DATA:						()   N   2			ORP		
Date: 5-9	2001	Volume	рН	s.c.	Temp.	Turbidity	DO	Salinity	Other		
Method:	بالمها	Initial	7.06	,281	22,68	6/1/	0.22	0,0	-187		
Monitor Reading	g (ppm):	1117	7.03	,276	22.09	38.0	0,44	0.0	-175		
Well Casing Dia	meter & Material	1130	7,00	.215	S5/18	31.9	0,49	の種で	-171		
Type: りつら	" PUC	CZIj	694	,275	25/13	30,4	3.34	0,0	-165		
Total Well Deptl	h (TD): 11.94	1200	6.94	,275	5534	29,4	7,39	0.0	-165		
Static Water Lev	vel (WL): 7,14	1210	6.45	1275	22.37	424	0.84	0,0	-165		
One Casing Vol	ume(gal(Do3)										
	1:30257/02						22004	29 ×2.02×=23			
End Purge (hrs)	: 1210			1000			0.000				
Total Purge Tim						8	98				
Total Vol. Purge									n n		
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Project Site Name: Project No.:  [] Domestic Well Data [X] Monitoring Well Data [] Other Well Type: [] QA Sample Type:	NASP Site 2 CTO 56 1120				Sample ID No.: PENA/GW 70 Sample Location: MW 70 Sampled By: C.O.C. No.: Type of Sample: [X] Low Concentration [] High Concentration				
SAMPLING DATA:					ne de la companya de la companya de la companya de la companya de la companya de la companya de la companya de			. 0.55	
Date: 5/9/07	Color	рН	s.c.	Temp.	Turbidity	DO	Salinity	Other -	
Time: 14:15	(Visual)	(S.U.)	(mS/cm)	( ⁰ C)	(NTU)	(mg/l)	(%)	ORP	
Method: low Flow		6.83	0.681	23.16	10.26	5.48	0.0	-160	
PURGE DATA:									
Date: 5/9/07	Volume	pН	S.C.	Temp.	Turbidity	DO	Salinity	-Other off	
Method: low flow	14:00	6.80	0.714	26.63	45.3	15.64	0.0	-163	
Monitor Reading (ppm):	14:05	6.82	0.695		19.8	14.94	0.0	-153	
Well Casing Diameter & Material	14:10	6,82	0,687	23.40	12.0	14,19	0,0	-158	
Type: 3/4-PVC	14:15	6.83	0.681	23.16	10.26	5.48	0.0	-160	
Total Well Depth (TD): 14, 4									
Static Water Level (WL): 6.85									
One Casing Volume(gal/L): 0.15									
Start Purge (hrs):							-		
End Purge (hrs):									
Total Purge Time (min):									
Fotal Vol. Purged (gal/L):									
SAMPLE COLLECTION INFORMA	TION:		17.44 E.71						
Analysis		Preser	vative		Container Re	quirements		Collected	
Total Pb		HN	١٥,		1 x 2	Lmoo	plastic	×	
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DBSERVATIONS / NOTES:					221				
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6.85								ļ	
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Project Site Name: Project No.:	NASP Site 2 CTO 56 1120				Sample Sample	ID No.: Location:	PEN 2164/7/01 MW71		
-					Sampled By:				
[] Domestic Well Data					C.O.C. No.:				
[X] Monitoring Well Data	a l					Sample:			
[] Other Well Type:						w_Concent			
[] QA Sample Type:					. [] High	n Concentra	ation		
SAMPLING DATA:									
Date: 5/9/07	Color	pН	s.c.	Temp.	Turbidity	DO	Salinity	Other	
Time: /3/9	(Visual)	(S.U.)	(mS/cm)	( ⁰ C)	(NTU)	(mg/l)	(%)	ORP	
Method: Iow Flow		7.02	.505	24.94	25.1	5.37	0.0	-168	
PURGE DATA:			i i					ORP	
Date: 5/9/07	Volume	рН	S.C.	Temp.	Turbidity	DO	Salinity	Other_	
Method: low flow Peristalis	Initial	7.00	,406	2434	151	9,57	0,0	~147	
Monitor Reading (ppm):	1204	6 96	,465	2417	57,5	632	0,0	-160	
Well Casing Diameter & Material		1 00	.503	24,59	38.6	7/1	0,0	-171	
Type: 3/4 "	1243	7000	1000	24,56	23,6			-1/4	
7.7	1317	7,00	1 1			6,12	0.0	-168	
Total Well Depth (TD): 14,50	1317	400	,505	24.94	25/	5,37	0,0	1768	
Static Water Level (WL): 6.89									
One Casing Volume(gal/L): 0, 15									
Start Purge (hrs):		,							
End Purge (hrs): /3/7			14 T						
Total Purge Time (min):									
Total Vol. Purged (gal/L):									
SAMPLE COLLECTION INFORMA	TION:								
Analysis		Preserv	vative		Container Re	equirements	SG .	Collected	
Total Pb		3N H	) _		1 x 20	OML	plastic	×	
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Project Site Name:	NASP Site 2	NASP Site 21 CTO 56 112G00583				Sample Location: Sampled By: C.O.C. No.:		PEN 21 MW7201	
Project No.:	CTO 56 112							21	
	<u> </u>								
[] Domestic Well Dat									
[X] Monitoring Well [ [] Other Well Type:		Type of Sample:							
[] Other Well Type: [] QA Sample Type:			<del></del>			[X] Low Concentration [] High Concentration			
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SAMPLING DATA:								To the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se	
Date: 5-9-07	Color	pН	S.C.	Temp.	Turbidity	DO	Salinity	-Other	
Time: 1/30	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	ORP	
Method: low flow PURGE DATA:		6.83	.286	23.33	68.4	11.82	0,0	-131	
		· · · · ·	Г <u>.</u> .					ORP	
	Volume	PH P 2 H	S.C.	Temp.	Turbidity	DO	Salinity	Other CC	
Method: law flow Peristo		601	19/7	24.02	272	7, 4/	0.0	-85	
Monitor Reading (ppm):	1010	6.50	,287	22.85	205	4.89	0.0	-104	
Well Casing Diameter & Materi	ial <i>[0] </i>	6-62	293	22.68	132	3,90	0,0	-104	
Type: 3/4 4		6-74	.285	22.73	102.7	11.03	0.0	-122	
Total Well Depth (TD): 14.5		6.78	.185	22.83	80.6	11.78	0.0	-124	
Static Water Level (WL): 🍃 🤅		6.81	,287	23.15	76.4	8.94	0.0	-129	
One Casing Volume(gal/L): 0	15 1056	6.84	,283	23.22	66,2	8.60	0,0	-128	
Start Purge (hrs): 09.50	2	6.83	.287	23.67	64.6	7.19	0.0	-131	
End Purge (hrs): 1130	1130	6.83	.286	23,33	68.4	11.82	0.0	-131	
Total Purge Time (min):									
Total Vol. Purged (gal/L):									
SAMPLE COLLECTION INFO	RMATION:						JAN THE		
Analysis		Preser	vative		Container Re	equirements		Collected	
Total Pb		HNO2		1 x 200 mL plastic				×	
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OBSERVATIONS / NOTES:									
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Project Site Name: Project No.:	NASP Site 2 CTO 56 112					ID No.: Location:	PENZIL Site	5W7301 21
[] Domestic Well Dat [X] Monitoring Well I						No.: Sample:	<u> </u>	
[] Other Well Type: [] QA Sample Type:						w Concent n Concentra		
SAMPLING DATA:		W. 38)					3-1-15	
Date: 5/10/07	Color	рН	s.c.	Temp.	Turbidity	DO	Salinity	Other
Time: 1555	(Visual)	(S.U.)	(mS/cm)	( ⁰ C)	(NTU)	(mg/l)	(%)	
Method: low flow PURGE DATA:		6.56	.405	22.78	10.39	4.78	0.0	-145
		T						ORP
10/0	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: low flow	Initial	6.65	1774	23.8/	322	450	0.0	~/65
Monitor Reading (ppm):	1530	6.53	,431	22,94	14 (	7.63	0,0	-133
Well Casing Diameter & Materi	the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the sa	6.51	.409	23.29	9.34	6.03	0.0	-148
Type: 3/4" PVC	1550	6.56	.405	12.78	10.39	4.78	0,0	-145
Total Well Depth (TD): 14.3	35		-30					
Static Water Level (WL): 7, L	19						ļ	
One Casing Volume(gal/L):		less as the						
Start Purge (hrs): /523	3							
End Purge (hrs): \555								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								
SAMPLE COLLECTION INFO	RMATION:		Ż.				ngg længe	
Analysis		Preser			Container R	equirements		Collected
BTEX		HC	<u></u>					
PAH								
Int		<del>                                     </del>						
TRPH		HC	/					
				31570				
Total Pb	a	HN	02					
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70		-						
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Project Site Project No.:		NASP Site 2 CTO 56 112						PEN21M MW 74 J.D.Sp.	
[X] Monit [] Other \ [] QA Sa	itoring Well Data Well Type: ample Type:					Type of _ [X] Lo	f Sample: ow Concent h Concentr		
SAMPLING DAT			A					PER STORES	
Date: 5/10	,	Color	pН	s.c.	Temp.	Turbidity	DO	Salinity	Other
	05	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	<u> </u>
Method: low	r flow	Clear.	6.52	43.2	22,40	6.89	0.00	0.0	
			524 1	T	456445)10)(3)(()()()()	T =	A (2 )		
Date: 5-10-		Volume	pH	S.C.	Temp.	Turbidity	DO 20	Salinity	Other
	flow Perisheltic	4	6.76			679.0	3,29	0,0	<del> </del>
Monitor Reading		<del> </del>	6.62	44,1	22.34	98. j	0.00	0.0	
//	ameter & Material	Ĺ	4.57	43,7	22.66	20,1	0,00	0,6	<u> </u>
· · · · · · · · · · · · · · · · · · ·	PVC	<u> </u>	6.53		22.65	14.1	0.00	0,0	<u> </u>
Total Well Depth	h (TD): 12.82		6,52	43.2	22,40	1.89	0.00	0.0	
Static Water Lev	vel (WL): 7.56			4		<u> </u>			
One Casing Vol		<u> </u>	Γ	['		Γ	<u> </u>		
Start Purge (hrs)				<u> </u>				'	
End Purge (hrs):								1	
	ne (min): 35 m							†	
Total Vol. Purge			<del>                                     </del>	t		<del>                                     </del>	<del> </del>	†	
	ECTION INFORMA	TION:							3xx**x4 = 30
	Analysis		Preser	vative		Container R	Requirements	3	Collected
PA			C0012	1°C	2	XILAM	<del>,                                     </del>		V
TRI			HCA		2	71L Am	bers		V
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Toto	al head.		HNO	)~	· 1	X125ml	~ Poly		-
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Project Site Project No.:		NASP Site 2 CTO 56 112					ID No.: Location:	PENDIC MW J.D. Spa	1du e
[X] Moni	stic Well Data toring Well Data Well Type: Imple Type:					C.O.C. Type of [X] Lo		tration	
SAMPLING DA	TA:							4.5	
Date: ちー1の		Color	pН	S.C.	Temp.	Turbidity	DO	Salinity	Other
Time: 152		(Visual)	(S.U.)	(mS/cm)	( ⁰ C)	(NTU)	(mg/l)	(%)	
Method: Low	flow	Clear	6.65	39.5	22.59	10,79	6.00	6.0	
PURGE DATA:							Sales of the		
Date: 5-10	7	Volume	pH	s.c.	Temp.	Turbidity	DO	Salinity	Other
Method: Low F	Tow/Peristaltic		6.64	44,3	23,39	682.0	1.42	0.0.	
Monitor Reading	g (ppm):		6.69	39.8	22.84	192.0	0.00	0.0	
	meter & Material		6.72	89.6	22.61	28.8	<b>ය.</b> 22	0.0	
Type: 3/4"	PUC.		6,72	39.8	22.46	21.9	0.00	G.O	_
	h (TD): 14,53		6.69	39.5	22.53	11.9	0,00	0.0	
	vel (WL): 7, 35		4.65	39.5	22.59	10.77	6.00	0.0	
One Casing Vol		(6)			, , , , ,				
Start Purge (hrs									
End Purge (hrs)					1000000				
									8
Total Purge Tim			<del>                                     </del>	<b>-</b>				-	_
Total Vol. Purge	ed (ga/L): .ECTION INFORMA	TION		of or Meson State	undstill in been	<u> </u>			
SAMPLE COLL	Analysis	illoit.	Preser	vative		Container B	equirements		Collected
RT	E¥		HC		2	X40mL			X
PA		-	Cool			2 XIL An			×
TRP			HCL			XILAN			×
Total	Lead.		HNC			X125mL	- ·		Q
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# **GROUNDWATER SAMPLE LOG SHEET**

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Project Site Name: PEN216W7601 NASP Site 21 Sample ID No.: Project No.: CTO 56 112G00583 Sample Location: Sampled By: C.O.C. No.: [] Domestic Well Data [X] Monitoring Well Data Type of Sample: [] Other Well Type: [X] Low Concentration [] QA Sample Type: [] High Concentration SAMPLING DATA: ORP Date: 5/10/07 S.C. **Turbidity** DO Salinity Other Color Temp. Time: (0C) (NTU) (Visual) (S.U.) (mS/cm) (mg/l) (%) Method: 6.44 ,589 25,06 48,6 murks **PURGE DATA:** ORP 5/10/07 Date: Volume S.C. Turbidity DO Salinity Other pН Temp. 70 Method: Initial 881 00 1332 103, Monitor Reading (ppm): ,513 4.83 0 6,43 Well Casing Diameter & Material 351 25,53 0.0 Type: 0.0 ,622 8,53 0,0 Total Well Depth (TD): 7.6 0.0 Static Water Level (WL): 79 One Casing Volume(gal/L): Start Purge (hrs): End Purge (hrs): Total Purge Time (min): Total Vol. Purged (gal/L): SAMPLE COLLECTION INFORMATION: **Analysis** Preservative **Container Requirements** Collected HCI OBSERVATIONS / NOTES: Circle if Applicable: Signature(s): MS/MSD **Duplicate ID No.:** 

	F		TETRA TECH NUS, INC.		CHAIN OF CUSTODY	CUST	λQC	_	NUMBER	1819		PAGE 2	0F 2
	PROJEC 112 G	CT NO:	PROJECT NO: FACILITY: WAS		PROJE	PROJECT MANAGER	AGER		PHONE NUMBER 1455-9	JER - 9459	LABORATORY NA	LABORATORY NAME AND CONTACT:	ico
	SAMPLE	ERS (SIG			FIELD	<b>DPERAT</b>	FIELD OPERATIONS LEADER		PHONE NUMBE	R	ADDRESS	,	
	=	0			7	.s. Do	Codis odsm		850/215	13981	1810 Eve	X. o Park	Ct, Sut 211
	\ \frac{\lambda}{\pi}	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	4. V. Colors		CARRII	ER/WAY	BILL NUMB	ER	<b>A</b>		CITY, STATE	32216	
	>	7	)						CONTAINE	CONTAINER TYPE	ı		
٠. ١	STANDA	ARD TAT	\				c'		PLASIIC	P) or GLASS ((	(5)		
	RUSH TAT ☐ ☐ 24 hr. ☐ 48	_ AT	hr. 🗌 72 hr. 🔲 7 day 📋	14 day				*****	USED	4117	Kant		
•	PGGS BABY	. H	SAMPLEID	ПОСАТІОИ ІБ	(тч) нтчэд чот	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, ETC.)  COLLECTION METHOD GRAB (G)	GRAB (G) COMP (C) No. OF CONTAINERS	SEMM BALL	Sell start			COMMENTS
	7 4 1	1125	NAS P21- MUICA- 0109	Polynos	1	1	4,6		-				
		<b></b>	NASP21-MUG1. 0/09	MWE	1	,	13	-	-				
			NASP 21. m w39-0109	AC38	\	,	620	_	7				-
	~~`O	ं १३५	NASP21 MU39-0109-MS	9KU39	1	-	50 6	-					
	,0 E-t-	0835	NASP21. Mu39.0109. MSD	m~38	1	1	60 6	-					
,	1-7 12	1215	NASP21 mw36.0109	mu36	•	1	GW 6						
	51 6-1	1556	NASP21-MW43-0109	m243	i	(	60 G	-	-				
	7.7	1505	NASP21- MW21-0109	120w	ŧ	,	Gm 6		-				
	2 C-	1400	NASP21-MW34-0109	mw34	(	,	6w G	-					
	5 C-	(32)	NASP21-MW28-0109	22 ms	,	1	6w 6		-				
1	11 4-1	2121	NASP21-MU14-2109	)_/, mw	(	,	60 G	~					
· · · •	1 t : 1	1140	NASPZI-MW10-0109	0.3R	1	,	60 G		-				
	1 4 -	105	MASP21 MW11-0109	35.2	,	,	020		~			4	
	1. RELIN	NOUISHE	S Dolor		DATE	Jo Jo	TIME	~	1. RECEIVED BY		7	DATE	TIME
	2. RELIN	2. RELINQUISHED BY	ED BY		DATE		TIME		2. RECEIVED BY			DATE	TIME
	3. RELIN	3. RELINQUISHED BY	ED BY		DATE		TIME	6,	RECEIVED BY			DATE	TIME
	COMMENTS	SLUE						_					
13	DISTRIBUTION:	3UTION:	WHITE (ACCOMPANIES SAMPLE)	MPLE)		<b> </b>	YELLOW (FIELD COPY)	ILD COF	o _Y )		PINK (FILE COPY)		4/02R
		We will have										_	-ORM NO. ItNUS-001

4810 Exection PR. CT. suite 211 COMMENTS IIME TIME PAGE 1 OF 2 Span Hallyman ENCO / SOR Hally MA 32216 DATE DATE DATE PINK (FILE COPY) CITY, STATE ADDRESS Sak CONTAINER TYPE PLASTIC (P) or GLASS (G) 1818 5 SHONE NUMBER PRESERVATIVE USED 398-012 KS8 PHONEAUMBER 3 ⋖ 2. RECEIVED BY RECEIVED BY 1. RECEIVED BY NUMBER YELLOW (FIELD COPY) က 7 ۲, No. OF CONTAINERS 7 FIELD OPERATIONS LEADER CARRIERWAYBILL NUMBER COLLECTION METHOD GRAB (G) COMP (C) 1200 O O Ø <u>U</u> <u>6</u>20 S TIME PROJECT MANAGER 3 SE 20 3 () 50x 10x E 3 ETC.) ğ CHAIN OF CUSTODY MATRIX (GW, SO, SW, SD, QC, 60. BOTTOM DEPTH (FT) 1 į ŧ (Joe 7. DATE DATE (тч) нтчэд чот now! 6K 8 43 543 MEDEL 84 Jun 8034 MAGA ろろろ ☐ 14 day WHITE (ACCOMPANIES SAMPLE) LOCATION ID FACILITY: NFIS (begans) 3 NASP21 - ML73-0109-D 0833 MASPZI. MW46R-0109 0635 NASPZZ3 MW73-0109 0922 WHSPZ1-MWO1-0109 1010-☐ 7 day 1645 NASP21 MWYR-0139 0950 NASP21-MW04-0109 SAMPLE ID NASP21-MWO8 Alak K TETRA TECH NUS, INC. ☐ 72 hr. 112 COSSS SAMPLERS (SIGNATURE) 1. RELINQUISHED BY 7 STANDARD TAT A RUSH TAT A 24 hr. 2. RELINQUISHED BY 3. RELINQUISHED BY PROJECT NO: DISTRIBUTION: 0835 TIME (32% COMMENTS 600Z -**YEAR** ص **ند** 30 **BATE** 

4/02R FORM NO. TŧNUS-001

Tetra Tech NUS, Inc.	
F	

INSTRUMENT NAME/MODEL: PROJECT NAME:

SITE NAME: MANUFACTURER:

サSア

PROJECT No.:

SERIAL NUMBER:

Bemarke	and	Comments		>5 1.415 m/c~		ORP 245 2	0000	77. 514.1 75		27.000	100.73	217	17. 3 ms/c·~	Į.	W 100	200									
Calibration	Standard	(Lot No.)		57.00	2807290	62756	412	65.60	2307295	\$5,47.9	NIA	(101)	260730	62405	10/2										
Instrument Readings	14/1/17/05			1 1 0	6017	245.1	99,9	1.413	Ser	245,4	100.0		Car		3	)									
Instrumen	Pre-	calibration	1.36.	200	3.50	7.257	73.8	1,393	049	521.2	127.1	700	263	2516	1.0.1										
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# GROUNDWATER LEVEL MEASUREMENT SHEET

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			~i.					
Project Na	me:	PEN UST 21			_ Project No.			· · · · · · · · · · · · · · · · · · ·
Location:	70.0	Site 21			_	W.D. Olson/C. O	· · · · · · · · · · · · · · · · · · ·	
Weather Co					_ Measuring	Device:	Water level indica	tor
Tidally In	lluenced:	Yes	_X No		Remarks:			
Well or Piezometer Number	Date	Time	TOC Elevation (feet)*	Installed Well Depth (feet)*	Measured Well Depth (feet)*	Wetur Level 6-04L (feet)*	Groundwater Elevation (feet)*	Comments
MW-1	1-609	0759	26.54	3.38?	obstydel			0.0
MW-2	1-2-34	2632	28.08	12.89	DE TON	_		0,0
MW-3	1-6-39	v\$ 54	28.89	5.58				
MW-4	1-6-09	0810	28.59	12.34	6.37	1,5'18		o. 0
MW-5	1-6-34	8513	29.93	12.92	6.75	13.75		0.0
MW-6	1-6-04	0837	28.40	12.78	6.04	12.63		0.0
MW-7	1-6-09	0814	28.49	12.74	6,23	7.77		<b>૭.</b> ৩
MW-8	1-6-09	0812	28.50	13.18	obstrated	••••		0.0
MW-9	1-6-09	0816	28.45	5.38	1			0,0
MW-10	1-4-31	0917	29.21	13.30	المجاد			
MW-11	1-6-09	ध्यंकप्र	28.59	13.08	6.31	13,00		٥.١
MW-12	1.6.09	0915	29.08	12.96	6.92	12.85		0.0
MW-13	1-6-04	०५३६	28.74	13.14	6,56	13.06		0.0
MW-14	1-6.00	041	28.93	13.44	weste	-		
MW-15	1-6-04	0453	28.68	13.60	6.28	13,50		6.0
MW-16	1-6-09	9991	28.53	14.34	6.28	13.15		0,0
MW-17	46-0C	0905	28.62	13.72	6.34	13.61		0.0
MW-18	1-6-04	0947	28.68	13.73	6.50	13.61		6.0
MW-19	1-604	1003	29.49	13.42	7.46	13.15		0.8
MW-20	1-6-69	1002	29.55	13.66	7,30	13,49		0.2
MW-21	1-6-06	1004	29.20	13.24	7,34	13,00		0.0
MW-22	1-6-09	क्राइय भेगाव	29.33	13.34	7,44	13,20		C.0
MW-23	1-6-04	0557	29.04	7.44	7.16	7.75		0.0
MW 04	156.00	Aare	00.44	10.10	725	12 0 1		n 1

* All measurements to the nearest 0.01 foot

1-6-64

MW-25

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29.28 13.26 7.27 13.16 Crsi, denayed as Mu 25, nort resolvey

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# GROUNDWATER LEVEL MEASUREMENT SHEET

Project Nat	me:	PEN UST 21 Site 21			Project No.	W.D. Olson/C. O	dom	
Weather Co Tidally Inf		Yes	_X No		_ Measuring Remarks:	Device:	Water level indica	tor
Well or Piezometer Number	Date	Time	TOC Elevation (feet)*	Installed Well Depth (feet)*	Measured Well Lepth (feet)*	Water Level	Groundwater Elevation (feet)*	Comments
MW-26	1-6-09	0856	28.25	5.90	doshar-tec	<b>\</b>		0.0
DMW-27	1-6-09	0910	28.79	33.88	6.55	33,63		0.0
MW-28	1-6.09		28.36	13.08	ري د ع لي ال	12.59		
DMW-29 7 20			NM	33.44	135			0.2
DMW-30			28.50	33.20		_		
MW-31R	1-6-09	1523	8.37		5.15	14.21		í,7
MW-32						,		
MW-33	1-4-09	1659	27.97	14	Obstrate	12,88		0,0
MW-34	1-6-09	1703	23.46	11.5	1.77	10.86		0.0
MW-35	1-6-09	1708	24.43	12.5	3.10	11.12		0.5
MW-36	1-6-09	1705	26.50	13	5.08	12,00		<i>(</i> )
MW-37	1-6-09	भिन्त	27.87	13	Loces			وَجُو
MW-38	1-6-09	1632	28.70	13	736	12.21		0,2
MW-39	1-7-09		28.88	12				
MW-40	1-4-09	1022	28.94	13	distribed			0.0
MW-41	1-6-09	१०२५	27.92	13	G.30	12.50		0,0
MW-42	1-6-06	1026	28.92	13	7.35	12,51		0.0
MW-43	1-4-06	1034	28.60	13	6.94 ठानुस्तर देवी			0.9
MW-44	16-04	0842	27.90	13.5	الم المع ور الحوادا			0.0
MW-45	1-6-09	_1132_	<del>2</del> 7.26	18	6.92	Coldrat		3.4
MW-46R	1-6-09	1129	9.64		7,66	14.41		9.0
MW-47	سان باس	1014	29.74	13	مع المهدن مهدور			
MW-48	1-6-09	0845	26.80	13	3,75	11.63		8,3
MW-49			28.85	13	مهمللرم،			
MW-50			28.56	13	المحالة عن		-	
* All measurements to	the nearest 0.01 foot							



# GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name:	PEN UST 21	Project No.:	
Location:	Site 21	Personnel: W.D. Olson/C. C	Odom
Weather Conditions:	clady windy low 70%	Measuring Device:	Water level indicator
Tidally Influenced:	Yes _X \No	Remarks:	

Tidally In	nuenceu:	ies	_A 410		Remarks:			
Well or Piezometer Number	Date .	Time	TOC Elevation (feet)*	Installed Well Depth (feet)*	Measured Well Desch (feet)*	Water Level  Ocp th  (feet)*	Groundwater Elevation (feet)*	Comments
MW-51	1-6-09	1536	28.31	13	631	17,63		0.4
MW-52			29.22	13	631			
MW-53	16-09	1048	28.80	13	6.45	12.09		<del>ن</del> 0
MW-54	1516	1519	9.18		6.68	, نودور		0.0
MW-55					destra	<u> </u>		
<u>MW-56</u>	1606	11355-			2 25 C	(0) (0) (1) (1) (1) (1) (1) (1) (1) (1) (1)	f	1.0
<u>M</u> W-57	1000	1154			7:25	20-18-24		1.8
MW-58	1-6-04	1623			6.42	12,45		3.1
MW-59	1-6-04	1612			6.01	12.65		0.7
MW-60_	1-6-09	1624	8.39		6.39	12.52		011
<u>MW-61</u>	1-6-09	1604			7,80	14.45	·.	7,9
MW-62	1.6.05	144	8.22		6.40	(3,61		8.9
MW-63	1-6-09	1608	7.91		6.27	14.48		10.4
MW-64	1-6-09	1553	8.05		6.62	14.44		૭,હ
MW-65	1-6-09	1556	· 8.43		6.48	14.15		0.7
MW-66	1-6-09	1558	8.57		7.15	14.22		0.3
MW-67	1-6-05	1725	7.86		5,75	14.34		07.7
MW-68					2018/200			
MW-69	1-6-05	เวเา	7.96		653	11.77	****	g.0
MW-70	1-6-05	1514	8.63	,	6.51	14.38		0.0
MW-71	1-6.05	1510	8.31	-	6.71	1452		0,0
MW-72	1-6-09	1505	7.84		repailed a			
MW-73	1-6-04	1135	8.75		7,34	1437	<u> </u>	1-0
MW-74	1-6-09	1502	8.43	· · · · · · · · · · · · · · · · · · ·	7.23	12.80		0.0
MW-75	1-6-04	11 454	8.50		7.25	14,55		1.8
MW-76	1-6-09	1132	8.61	6.97		13.67		3,5

MW-76 Construction of the nearest 0.01 foot

Page ____ of ____



1051

# **GROUNDWATER SAMPLE LOG SHEET**

1083921 MW690109 Project Site Name: Sample ID No.: Project No.: Sample Location: Sampled By: [] Domestic Well Data C.O.C. No.: Monitoring Well Data Type of Sample: [] Other Well Type: [] High Concentration [] QA Sample Type: SAMPLING DATA: Date: 1-7/09 Color S.C. Turb DO ORP SWL рΗ Temp. Time Time: (°C) 1125 (Visual) (S.U.) (µS/cm) (NTU) (mg/l) (mV) (feet below TOC) 241 Method: *20:2-*( 4.16 -42.4 aux 6.77 2,49 1120 LOW 172M2 PURGE DATA: 1.7109 рΗ Volume Temp. Turb DO ORP SWL 243 20.20 8.88 1105 Method: Low Place 2.48 -413.7 241 20.26 7.43 2.49 Monitor Reading (ppm): (かん 20.21 40 841 5,14 2,42 45,4 Well Casing Diameter & Material 1115 Type: 3/4 Puc 241 20.244,16 -42.4 2.49 1/20 Total Well Depth (TD): 11-9식 Static Water Level (WL): 685 One Casing Volume(gal/L): 🕜 🚶 Start Purge (hrs): 1053 End Purge (hrs): 1126 27 Total Purge Time (min): Total Vol. Purged (ga/🗓): SAMPLE COLLECTION INFORMATION: **Analysis** Preservative **Container Requirements** Collected Lead, Manganese and Zinc HNO₃ 1 X 500 mL Polyethylene OBSERVATIONS / NOTES: well pur has been removed, well looks Circle if Applicable: ignature(s).
LuddioRoo MS/MSD **Duplicate ID No.:** 



11.5

.43

2 2

# **GROUNDWATER SAMPLE LOG SHEET**

5ile 21 Project Site Name: Sample ID No.: Project No.: Sample Location: Sampled By: Domestic Well Data C.O.C. No.: Monitoring Well Data Type of Sample: [] Other Well Type: Low Concentration [] QA Sample Type: [] High Concentration SAMPLING DATA: Date: 1-7109 Color рΗ S.C. Temp. Turb DO ORP SWL Time Time: 0935 (0C) (Visual) (S.U.) (µS/cm) (NTU) (mg/l) (mV) feet below TOC Method: 187 21.5 X 4.31 0834 CYB Did PURGE DATA: e с., พสก からし S.C. 7/09 Date: -Volume Temp. Turb рН DO ORP **SWL** Time Method: Low Pcow 21.47 2.43 -42.6 09/今 7.5. Monitor Reading (ppm):  $\mathcal{O}$ 21.73 -92.0 7.55 0.64 0918 4.36 Well Casing Diameter & Material 200 0.52 104.5 7.55 0921 Type: I' Pra 194 0975 Total Well Depth (TD): 6.41 0.44 123.8 R 7.20 Static Water Level (WL): 21,52 4.75 0931 G,410 21.50 One Casing Volume (ga)/L): 🗸 . 172 0.47 0934 Start Purge (hrs): 0910 0934 End Purge (hrs): Total Purge Time (min): Total Vol. Purged (gal/L): 🕇 🎗 SAMPLE COLLECTION INFORMATION: Analysis Preservative **Container Requirements** Collected Lead, Manganese and Zinc HNO₃ 1 X 500 mL Polyethylene OBSERVATIONS / NOTES: Circle if Applicable: RUSA Olsa MS/MSD **Duplicate ID No.:** 



# Tetra Tech NUS, Inc. GROUNDWATER SAMPLE LOG SHEET

			***************************************						Page_	of	_
[] Monito [] Other	: stic Well Data oring Well Data Well Type: umple Type:					Sam Sam C.O Type	npled E .C. No. e of Sa Low Co	cation: By: .:	MW-3 <del>0</del> *	1 MW \$40	109
	69	Color	рН	s.c.	Temp.	Turb	ро	ORP	SWL	Time	
	00	(Visual)	(S.U.)	(µS/cm)	(°C)	(NTU)	(mg/l)	(mV)	(feet below TOC)		1
	w Flow	clen	6.75	50	20.63	3,12	158	-16.9	1,71	1355	1
PURGE DATA:											
Date: 1 - 7	103	Volume	рΗ	s.c.	Temp.	Turb	DO	ORP	SWL	Time	1
Method: レクロ	n FLow	2.l	6.81	574	20.42	1.18	1.69	38,5	1.70	1250	1
Monitor Reading		36	6.80	568	20,41	177	1.82	37.0	1.70	1255	1
	meter & Material	40	6.77	547	20,59	7.75		27.3	1.71	1340	1
Type: 1" f			6.76	534	70,63		1	5.2	1.72	1345	1
, , , , , , , , , , , , , , , , , , ,	n (TD): 10,85	82	6.76	<del> </del>	20.65			-7.6	1.71	1350	1
	/el (WL): 1.69	100	6.75		20,63		1 .	-16,4	1.71	1355	1
	ume <b>(</b> ලිම්I/L): ර , 36ිරි		0, .5		<u> </u>	5,12	3.0	101	' ' '	705	1
Start Purge (hrs											1
End Purge (hrs)											1
Total Purge Tim	main's										
Total Vol. Purge	-e.			<u> </u>							ł
	d (gal <b>(Ĺ)</b> : ( ∕) ECTION INFORMATIO	N:							<u> </u>		
	Analysis		Prese	rvative		Contain	er Regu	irements		Collected	1
		,									1
Lead, Manganes	se and Zinc		Н	NO ₃		1 X	500 mL l	Polyethylene			1
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OBSERVATION	epopulation property and a second property and a second	_									ł
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Project Site Name: Sample ID No.: NASP21-mw28-0109 Project No.: Sample Location: MW-28 Sampled By: C. Oden C.O.C. No.: [] Domestic Well Data Monitoring Well Data Type of Sample: [] Other Well Type: [] Low Concentration [] QA Sample Type: [] High Concentration SAMPLING DATA: Date: 1-7-09 рΗ DO ORP SWL Color S.C. Temp. Turb Time Time: 1320 (Visual) (S.U.) (VNS/cm) (°C) (NTU) (mg/l) (mV) (feet below TOC) Clear Method: ادر ع أصن 0.403 21,72 7 6.2 -69.3 6.14 1320 PURGE DATA: Date: 1-1-59 Temp. Volume pН S.C. Turb DO ORP SWL Time Method: Low Flow 11 6.72 0,293 21.60 44 6.14 267 -13,8 1700 1305 Monitor Reading (ppm): 26 662 0395 2173 6.63 19 -63.7 ۵.الر 0.58 76.0 21.75 1360 Well Casing Diameter & Material 3 6.62 0.40 13 6.14 Type: 2.5° ₽₩< 659 21.74 ٩ 6,14 1315 0.404 0.55 -71.3 Total Well Depth (TD): (2、つら 21.72 0.403 4 1320 0,51 ~69.~ 6.14 Static Water Level (WL): 6 12 One Casing Volume(gal/L): 4のこ Start Purge (hrs): 1255 End Purge (hrs): トうつつ Total Purge Time (min): マケ Total Vol. Purged (gal🗘) 🕤 SAMPLE COLLECTION INFORMATION: **Analysis** Preservative **Container Requirements** Collected HNO₃ Lead, Manganese and Zinc 1 X 500 mL Polyethylene OBSERVATIONS / NOTES: Circle if Applicable: Signature(s): MS/MSD **Duplicate ID No.:** 



# Tetra Tech NUS, Inc. GROUNDWATER SAMPLE LOG SHEET

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Project Site Project No.	:	5:20 CTO	1 NA:	sρ		San San	nple Lo npled B	cation: y:	121-Mui MW-44 C. Odo	44-0109
∰Monito [] Other	stic Well Data oring Well Data Well Type: umple Type:					Typ:				
SAMPLING DAT	TA:			199						
Date: 1- つ- む	٠٩	Color	pН	S.C.	Temp.	Turb	DO	ORP	SWL	Time
Time: 1215	<u></u>	(Visual)	(S.U.)	KµS/cm)	(°C)	(NTU)	(mg/l)	(mV)	(feet below TOC)	
Method: \	4600	cles	6.81	5.407	23.85	ίÝ	0:24	-3112	5.31	125
PURGE DATA:				•	Γ			<u> </u>		
Date: 1-フ-ジ		Volume	pН	S.C.	Temp.	Turb	DO	ORP	SWL	Time
Method: しょっぱ	اأص	11		0.397	1.	38	1.99	~550	2.36	1500
Monitor Reading	g (ppm):	26	6.82	0,405	25:47	59	0.85	-25:7	5.31	1205
Well Casing Dia	meter & Material	34	6,84	0.45	20.79	SO	०,७३	-27.0	5.3(	1510
Type: \.25"	PUC	41	6.61	0.407	₹2.82	150	0,74	-518	531	1217
Total Well Depth	ר (TD): <b>( ל אַ, כי ׳ן</b>								73	
Static Water Lev	/el (WL):ちょう									
One Casing Vol	ume(gal∕ <b>(</b> ) 1∂ 6									
Start Purge (hrs)										
End Purge (hrs):									r	
Total Purge Time								,		
Total Vol. Purge			-	Y		<del> </del>				
	ECTION INFORMATIC	N:	I							
	Analysis	200000000000000000000000000000000000000	Prese	rvative		Contain	er Requi	rements		Collected
					S					
Lead, Manganes	se and Zinc		H	VO ₃		1 X	500 mL F	Polyethylene		Yel
		*				* *				
				- Landandon de la company						
OBSERVATION	S / NOTES:									
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Circle if Applica	ible:					Signatu	re(s):			
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# Tetra Tech NUS, Inc. GROUNDWATER SAMPLE LOG SHEET

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Project Site Project No.:	Name:	5, to 2	2 ( NA	sp		San	nple ID nple Lo npled B	cation:	P21-MG MW-10 C. See:	<u> </u>
[] Monito [] Other \	stic Well Data ring Well Data Well Type: mple Type:					C.O Typ	.C. No. e of Sa _ow Co	:	on .	
SAMPLING DAT	'A:									,
Date: 1-1-69	i	Color	pН	s.c.	Temp.	Turb	DO	ORP	SWL	Time
Time: ハイク		(Visual)	(S.U.)	(\ps/cm)	(°C)	(NTU)	(mg/l)	(mV)	(feet below TOC)	
Method: ادنى ا	(o~	46	653	9.538	2076	17	0.46	-144.7	7.14	1140
PURGE DATA:							ı		1	
Date: いつ・のら		Volume	pН	s.c.	Temp.	Turb	DO	ORP	SWL	Time
Method: ไთა -	€	11	678	0:258	21.66	25	91	-148.2	7,14	1152
Monitor Reading	(ppm):	21	6.61	0:240	21.70	18	0.42	-146.4	7.14	1130
Well Casing Dia	meter & Material	34	656	0:538	21.74	18	0.44	-146.2	7.14	1135
Type: つら"	400	40	6.ST	0:238	2196	17	0.46	-144.7	7,14	1140
Total Well Depth	(TD): 13.06							***************************************		
	rel (WL): 7,12									
	ume(gal/L): 3. 6 (									
Start Purge (hrs)										
End Purge (hrs):										
Total Purge Time	_									
Total Vol. Purge										
	ECTION INFORMATIC	/N:	Duana	rvative		^t-i-	au Daari			Collected
	Analysis		Fiese	valive		Contain	ei nequi	rements		Collected
Lead, Manganes	se and Zinc		H	NO ₃		1 X	500 mL F	Polyethylene		Ye,
Loud, Mangano	0 4.14 2.1.0			3		<u> </u>		0.707.00		
51. Fr. E.										
4.7										
OBSERVATION	S/NOTES:									
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Page_ of Site 21 NASP Sample ID No.: NASPZI - NW YER-DIG9 Project Site Name: Project No.: 11260583 Sample Location: MW-451 46R Sampled By: Ciodin [] Domestic Well Data C.O.C. No.: Monitoring Well Data Type of Sample: [] Other Well Type: [] Low Concentration [] QA Sample Type: [] High Concentration SAMPLING DATA: Date: (-**'\$** -**0** ¶ S.C. Color pН Temp. Turb DO ORP SWL Time Time: 0830  $(^{0}C)$ (S.U.) (AS/cm) (NTU) (Visual) (mg/l) (mV) (feet below TOC) Method: Isu+(su) LIL 0,421 72.08 2 0.45 6.80 -213,2 -7:79 PURGE DATA: Date: 1-8-09 Volume рΗ S.C. Temp. Turb DO ORP SWL Time 686 Method: ( ) - +( ) 11 0.418 21.98 0.44 -191,2 2.79 OSIS 21 Ç, 82 6 0.457 55.02 7,79 0820 Monitor Reading (ppm): 042 -23.0 6.81 31 Well Casing Diameter & Material -213.2 7.79 0856 0.420 27.10 043 Type: 0,75" PUC 41 - 213.2 0830 680 25 Q <u>_</u>2 0.421 0.45 7.79 Total Well Depth (TD): 🙀 📉 📉 Static Water Level (WL): 7,67 One Casing Volume(gal(🛈): 🏻 🖒 🕻 🕦 Start Purge (hrs): りもい 0837 End Purge (hrs): Total Purge Time (min): "20 Total Vol. Purged (ga🛈): 🏒 SAMPLE COLLECTION INFORMATION: **Analysis** Preservative **Container Requirements** Collected Lead, Manganese and Zinc HNO₃ 1 X 500 mL Polyethylene YO. OBSERVATIONS / NOTES: Circle if Applicable: 150 Cm MS/MSD **Duplicate ID No.:** 



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of _ Project Site Name: Sample ID No.: NASP21 - MWG1- 0109 Project No.: Sample Location: >MW-03- incu € 1 Sampled By: C.202~ □ Domestic Well Data C.O.C. No.: H-Monitoring Well Data Type of Sample: [] Other Well Type: [] Low Concentration [] QA Sample Type: [] High Concentration SAMPLING DATA: Date: 1-8-09 Color рΗ S.C. Temp. Turb DO ORP **SWL** Time Time: も920 ^  $(^{0}C)$ (S.U.) (Visual) Mus/cm) (NTU) (mg/l) (mV) feet below TOC Method: ( - w + 10 -) des Cous 0154 20.91 O 58,6 OSPC PURGE DATA: Date: 1-8-09 Volume pН S.C. Turb DO ORP Temp. SWL Time Method: しゃもしゃ 6.62 0.154 0.54 -113 2000 14 21.01 0.82 2L 0.154 70,97 9910 Monitor Reading (ppm): 7619 33.4H O 0915 0.80 Well Casing Diameter & Material 34 0.153 Type: 2.5" PV< 0.82 5970 70.91 0 41 6.43 D.154 Total Well Depth (TD): Static Water Level (WL): One Casing Volume(gal/L): Start Purge (hrs): のらっこ End Purge (hrs): Of? O Total Purge Time (min): 🍃🔾 Total Vol. Purged (galatic): SAMPLE COLLECTION INFORMATION: **Analysis** Preservative **Container Requirements** Collected HNO₃ Ye 1 Lead, Manganese and Zinc 1 X 500 mL Polyethylene OBSERVATIONS / NOTES: Unable to acquire TD or SWL die to Welcage i casing Circle if Applicable: Signature(s): MS/MSD **Duplicate ID No.:** 



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Sample ID No.: MASP21- MUCY-DIO9 Project Site Name: MW-04 Project No.: Sample Location: Sampled By: 6.0 as~ C.O.C. No.: [] Domestic Well Data A Monitoring Well Data Type of Sample: [] Other Well Type: [] Low Concentration [] QA Sample Type: [] High Concentration SAMPLING DATA: Date: 1-つ-つら Color S.C. Turb DO ORP SWL рΗ Temp. Time Time: 095 7 (°C) (NS/cm) (Visual) (S.U.) (NTU) (mg/l) (mV) eet below TOC) Method: しっいっぱっし 8.223 ६ ८ ५ clesi 690 23,86 161.4 640 095 U 10 PURGE DATA: Date: 1-7-05 Turb Volume DO ORP SWL рΗ S.C. Temp. Time Method: しゃしし 226 2º.60 15 6.40 593E 279 GO.8 11 13 0.71 -141.6 0940 Monitor Reading (ppm): 26 6.40 654 8.322 20,81 Well Casing Diameter & Material 6.50 9,339 0,68 34 20.88 11 -155.5 6.43 0995 0220 Type: 2.0" PVC HL 2086 0.67 -1614 6.40 0950 10 Total Well Depth (TD): 12.1ラ Static Water Level (WL): 6,39 One Casing Volume(gal/L): 3.51 Start Purge (hrs): 093つ End Purge (hrs): 8950 Total Purge Time (min): 2つ Total Vol. Purged (gal**Q**): 4 SAMPLE COLLECTION INFORMATION: Preservative **Analysis Container Requirements** Collected Lead, Manganese and Zinc HNO₃ 1 X 500 mL Polyethylene 4-5 OBSERVATIONS / NOTES: Circle if Applicable: Signature(s): MS/MSD **Duplicate ID No.:** 



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∰-Monito [] Other \		Sit i	21 NI	<u>ASP</u>		Sam Sam C.O. Type	nple Loon npled B .C. No. e of Sa Low Co	sy: :	MW-08 C. Od-	
SAMPLING DAT										
Date: 1- つ- さら		Color	рH	s.c.	I Tamp	Turb	DO	ORP	T 04/1	T!
Time: 1025		(Visual)	(S.U.)	S.C.	Temp.	(NTU)	(mg/l)	(mV)	(feet below TOC)	Time
Method: ( v ~		(Visual)		0.446	21.82	14	0:3×	~40.4	(leet below roc)	1025
PURGE DATA:				<u></u>				10.		
Date: ۱-1-0 <	• _	Volume	pН	s.c.	Temp.	Turb	DO	ORP	SWL	Time
Method: jow	1 .3	اد	6:66	0.347	71.81	16	อกร	~\$2.i		1010
Monitor Reading			660	0.431	21.74	15	0.42	-42.8		615
	meter & Material	3i	6.28	<del></del>	21,79		0.39	-35.3		19.50
Type: 2.6"		41	<del> </del>	0.446	51.65	15 )4	0,37	~ 40.4		1050
- 7F		1-	6.2	0,170	<1		0, , ,	770,3		10-7
Total Well Depth					<del>                                     </del>					
Static Water Lev					<del>                                     </del>					
One Casing Volu				<b> </b>	<b>  </b>					
Start Purge (hrs)			<b>  </b>				<b> </b>		:	
End Purge (hrs):			<b>  </b>		<del>                                     </del>					
Total Purge Time			<b> </b>							
Total Vol. Purged								- Samonae		
ورورون كالمالات والمساورة والمساورة والمالات		The state of the companies and the second	and the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contra	ABBIOGRAM AND AND ADDRESS OF THE ABBIOGRAM AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS						
	ECTION INFORMATIO	N:								_
	ECTION INFORMATIO Analysis	N:	Preser	vative		Containe	er Requi	rements		Collected
	Analysis	N:								
	Analysis	N:		rvative				rements Polyethylene		Collected
	Analysis	N:								
	Analysis	N:								
	Analysis	N:								
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	Analysis	N:								
	Analysis	N:								
Lead, Manganes	Analysis se and Zinc Se And Zinc		HN	NO ₃						
Lead, Manganes	Analysis se and Zinc Se And Zinc		HN	NO ₃						
Lead, Manganes	Analysis se and Zinc		HN	NO ₃						
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Lead, Manganes	Analysis se and Zinc Se And Zinc		HN	NO ₃						
Lead, Manganes	Analysis se and Zinc se And Zinc		HN	NO ₃			500 mL F			
Lead, Manganes OBSERVATION	Analysis se and Zinc se And Zinc		HN	NO ₃		1 X 5	500 mL F			



# Tetra Tech NUS, Inc. GROUNDWATER SAMPLE LOG SHEET

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Project Site Project No.:	Name:	NASP	5.4.5	21			nple ID	No.: <b>NA</b> S 6	P <u>ZI-MW</u> MW-11	11-0109
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[] Domes	stic Well Data					C.O.	.C. No.	.:		
	ring Well Data						e of Sa			
	Well Type:							oncentration		
[] QA Sa	mple Type:					_    '	High Co	oncentrati	on	
SAMPLING DAT	ГА:									
Date: 1-7-0c	1	Color	рН	s.c.	Temp.	Turb	DO	ORP	SWL	Time
Time: ハばち		(Visual)	(S.U.)	KAS/cm)	( ⁰ C)	(NTU)	(mg/l)	(mV)	(feet below TOC)	
Method: اُصن	ال ما لا	cleas	670	0,75,0	5183	16	0.34	-107,4	634	1105
PURGE DATA:			T	1	<del>1</del>	<del>,</del>		7	-	T
Date: 1- 1- 0		Volume	pН	S.C.	Temp.	Turb	DO	ORP	SWL	Time
Method: l ಾವ್ಯ ಗ		11-	1	0.347	21.73	24	0.25	-81.8	6.33	1050
Monitor Reading	ı (ppm):	26	6.73	0.345	·	19	9.81	-68.0	6.33	1255
-	meter & Material	ZL	റോ	6.353	S181	17	18.0	-36.5	6:33	1100
Type: كت" الا		46	<b>ୌ</b> ଠ	0.350	S183	16	6.84	-i07.4	6.37	1105
Total Well Depth	n (TD): 12,90				[					
Static Water Lev	vel (WL): & 3'고									
	ume(gal/L): げ、つ									
Start Purge (hrs)					<u> </u>		<u> </u>			
End Purge (hrs):									<del>                                     </del>	
Total Purge Time					<b>-</b>	<del> </del>				
Total Vol. Purged									<b>†</b>	
	ECTION INFORMATIO	N:								
	Analysis		Prese	rvative		Contain	er Requi	irements		Collected
Lead, Manganes	se and Zinc		HI	NO ₃		1 X	500 mL F	Polyethylene		425
			<u> </u>		<u> </u>					
			<del> </del>		-					
			<del> </del>							
			<del> </del>							
								· · · · · · · · · · · · · · · · · · ·		
OBSERVATION:	S/NOTES:									
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						4 / 7				



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Project Site Project No.		514	o 21			Sam	nple ID nple Lo npled B	cation:	145\$ 2. MW-21	1 Mw 210
[] Monito	stic Well Data oring Well Data Well Type: ample Type:					C.O Typ∈ ¶°I	.C. No. e of Sa Low Co	:	on .	
SAMPLING DAT										
	1109	Color	рН	s.c.	Temp.	Turb	ро	ORP	SWL	Time
	05	(Visual)	(S.U.)	(IIS/cm)	(°C)	(NTU)	(mg/l)	(mV)	(feet below TOC)	
Method: しのに		clear	6.58	0,294	25.67	2,11	0.37	-10857	7, 35	1505
PURGE DATA:										
Date: 1-74	.09	Volume	рН	s.c.	Temp.	Turb	DO	ORP	SWL	Time
Method: ムの。	w Floro	1 gal	6.61	6.292	22.78	2.70	0.37	-93.9	7.36	1485
Monitor Reading		1 3	<del>†</del>	0.292	-			~80.5	7.35	1450
	meter & Material		6.58						7.36	1455
	Puc	13/45		0.294	22,67		0,37	-108.7	7.35	1500
	h (TD):   3.01						,- ,			7 500
	vel (WL): 7.35									
	ume(6a)/L): 0,92									
Start Purge (hrs)										
End Purge (hrs):	3 .	<b></b>	<u> </u>							
Total Purge Time			<u> </u>							
	ed (ga)/L): 1,75 ECTION INFORMATIO	\NI-							aastoloossa ja käistö	
	Analysis	414	Prese	rvative		Contain	er Reaui	rements		Collected
Lead, Manganes	se and Zinc		Н	VO ₃		1 X	500 mL F	Polyethylene		J
		<del></del>								
·										
			B03838888888				otorie na la cessos			
OBSERVATION	S/NOTES:									
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	•									
OBSERVATION  Circle if Applica  MS/MSD	•					Signatu	re(s):			

7.35 5,66 0.257 0.06



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Project Site Name: Project No.:	s; to	5ite 21				nple ID nple Lo npled B	cation:	UASP 2 MW-43	1 MW 430	109	
[] Domestic Well Data  ᠺ[ Monitoring Well Data [] Other Well Type: [] QA Sample Type:						C.O.C. No.:  Type of Sample:  Low Concentration  High Concentration					
			SHRI Gewennerend			Economic de Company			sast alla "versa pinti sinti da vinc		
SAMPLING DATA:	- Color		I 66	<b>-</b>	TL	- BO	000	Cun	T		
Date: 1~7 69 Time: 1555	Color (Visual)	pH (S.U.)	<b>S.C.</b> (μS/cm)	Temp.	(NTU)	DO (mg/l)	ORP (mV)	SWL (feet below TOC)	Time		
Method: Low Flori		6.73	ρ, 553		4.18		-592,3	Z201	1555		
PURGE DATA:			<i>γ</i> , τ =		L		ر بور ع		333	1	
Date: 1 ~ 7 (09	Volume	рН	s.c.	Temp.	Turb	DO	ORP	SWL	Time	1	
Method: LOW (3LOW	70	6.65	0,511	22.32			-263.0		1535		
Monitor Reading (ppm): の。	30		0.543			<del> </del>	-278.4	7.01	1540		
Well Casing Diameter & Material		6.73		22,27					1545	İ	
Type: 1"PVC	节定	6.73		22.19		<u> </u>	-292,3	7.01	1600.15	82	
Total Well Depth (TD): 12.6		00			,,,,,	0.01	4 1 - , 0	1,00	70000		
Static Water Level (WL): 6.9 i	<u>r</u>										
One Casing Volume (gal)L): . Z.Z.										1	
Start Purge (hrs): 1525								 			
End Purge (hrs): 1550											
Total Purge Time (min): 75			<u> </u>							1	
Total Vol. Purged (gal(L)) 5			enden endelikkided	ninkakalahihiningsa.				donsars istopeda solda			
SAMPLE COLLECTION INFORMA	TION:			l					A.II		
Analysis		Preservative			Contain	er Hequi	Collected				
Lead, Manganese and Zinc		HNO ₃			1 X	500 mL F		<del></del>	ŀ		
<u> </u>										i	
										1	
										1	
										1	
OBSERVATIONS / NOTES:											
Pura	se world	22 h	ne 5	1010	. م .	100				•	
+01	rus da	<b>ード</b> し	u/ex	POSL	ne	toa	is				
Circle if Applicable:					Signatu	ıre(s):	. 0				
MS/MSD Duplicate ID No.:							awx	20C-			
					l					1	

7.00

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Project Site	<i>:</i>	Sile	(5,			San San	npled E	cation: By:	ASP 21 M MW-36 LVRO	16010
M Monito	estic Well Data oring Well Data Well Type: ample Type:		÷			Typ _ A				
SAMPLING DA	<b>7</b> ∧						•			
a management to the contract of the contract of the	7 (09	Color	рН	s.c.	Temp.	Turb	DO	l opp	Love	
	15	(Visual)	(S.U.)	(μS/cm)	(°C)	(NTU)	(mg/l)	ORP (mV)	SWL	Time
	ow Pade	Clean	6.53	36	21.57	4,41	0.43	-465	(feet below TOC)	1216
PURGE DATA:										
Date: 1 ~ 7	109	Volume	рН	s.c.	Temp.	Turb	DO	ORP	SWL	Time
Method: $\hat{\iota}_{\sim} o$	with	Sl	6,61	282	21,45		1.80	-18.7	5.11	1150
	g (ppm): 0 · 6	32	6.57	302	21,56	Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Contract Con	0.96		5:11	1155
	ameter & Material	40	6,55	307	21.57	5.04		-32,9	5,10	
Type:	PVC	5 l	6,55		21.55					1200
Total Well Dept	-	60	6.53	310	21,57	4,41	9,43	-36,5	5,10	15 45
Static Water Lev		3	6:2)	3/0	<u> </u>	7,5-4/	5,73	-711,5	5,10	1210
	ume(ga)/L): 0 . 28	·								
Start Purge (hrs	4 4									
End Purge (hrs)										
Total Purge Tim										
Total Vol. Purge							Weekle de de de de de de de			000aaaaaa
SAMPLE COLLECTION INFORMATION:			Preservative							
Analysis		Preser		Contain		Collected				
Lead, Manganese and Zinc		AH.	IO ₃		<del>-</del>					
					1 X 500 mL Polyethylene					
					·					
OBSERVATION	S / NOTES:									
-	<del></del>	1:pen	BWA	01						
		,	1-71	30						
			. ,	0 /						
Circle if Applicable: Signature(s):										
MS/MSD	Duplicate ID No.:							Ol_		
						1	v		_	



51621 NASP 21MW 610109 Project Site Name: Sample ID No.: Project No.: Sample Location: hose Sampled By: [] Domestic Well Data C.O.C. No.: Monitoring Well Data Type of Sample: [] Other Well Type: [] QA Sample Type: [] High Concentration SAMPLING DATA: Date: 1-7109 Color рΗ S.C. Temp. Turb DO ORP SWL Time Time: (µS/cm) (0C) (mg/l) (Visual) (S.U.) (NTU) (mV) feet below TOC Method: Low Flow ASE 3,73 Claur 6149 0,39 -122,47 035 PURGE DATA: 1-7/09 Date: Temp. Turb DO Volume pН S.C. ORP SWL Time Method: Low FLow 329 21.24 6.81 0.77 -109.8 1015 Monitor Reading (ppm): -328 21.45 3.83 0.41 -1277 1000 Well Casing Diameter & Material 329 215> 3.930.34 ~136,8 1025 2/4" PUE 21,48 3,73 0,39 -129,4 1030 Total Well Depth (TD): 14,45 Static Water Level (WL): 7,73 One Casing Volume(gal/L): () : 乙ん名 Start Purge (hrs): 1005 End Purge (hrs): 1030 Total Purge Time (min): Total Vol. Purged (gal(C)) SAMPLE COLLECTION INFORMATION: **Analysis** Preservative Collected **Container Requirements** Lead, Manganese and Zinc HNO₃ 1 X 500 mL Polyethylene OBSERVATIONS / NOTES: Punge worten has shown well of to small for tobly and well probe do not record such doing punge Signature(s): Circle if Applicable: MS/MSD **Duplicate ID No.:** 



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Project Site Name: Sample ID No.: NASPZI-MW48-0109 Project No.: Sample Location: Sampled By: C.O.C. No.: [] Domestic Well Data Monitoring Well Data Type of Sample: [] Other Well Type: [] Low Concentration [] QA Sample Type: [] High Concentration SAMPLING DATA: Date: (- 7- ୭፻ Color S.C. Temp. Turb DO ORP SWL рΗ Time 1640 Time: (0C) (Visual) (S.U.) (µS/cm) (NTU) (mg/l)(mV) eet below TOC 20.27 Method: Low How clem 6.00 0.277 6,08 15.1 -100.5 3.80 1645 PURGE DATA: Date: 1-7-09 Volume Turb S.C. Temp. DO ORP SWL Hq Time 21 20.21 0.93 Method: Low How 6.61 0.256 54,8 -127.9 3,80 1620 <u>3 D</u> 1625 Monitor Reading (ppm): 6.59 0.264 20.25 22.7 1-13 -111.0 3,80 48 6.58 Well Casing Diameter & Material 0.270 20.27 12.2 1.31 -116.7 3.80 1630 6,57 Type: 1.0" PVC 50.5.8 10.40 1.18 0.274 -48.5 3.80 1635 60 6.58 0.277 20.27 -100.5 Total Well Depth (TD): しいろし 6.08 1,21 1640 3.80 Static Water Level (WL): 3.15 One Casing Volume(gal/L): 11. Start Purge (hrs): 16 10 1640 End Purge (hrs): Total Purge Time (min): 30 Total Vol. Purged (ga(L):) (o SAMPLE COLLECTION INFORMATION: **Analysis** Preservative **Container Requirements** Collected Lead, Manganese and Zinc HNO₃ 1 X 500 mL Polyethylene OBSERVATIONS / NOTES: orange sed on tobing Circle if Applicable: Signature(s): MADRO MS/MSD **Duplicate ID No.:** 



7-02

0.14

### **GROUNDWATER SAMPLE LOG SHEET**

Page_ Project Site Name: 5: 6 21 NASP 21 MW 730 109 Sample ID No.: Project No.: Sample Location: Sampled By: Domestic Well Data C.O.C. No.: [] Monitoring Well Data Type of Sample: [] Other Well Type: Low Concentration [] QA Sample Type: [] High Concentration SAMPLING DATA: 1-8/09 Date: S.C. Color Temp. Turb DO ORP SWL Time Time: 0835 (°C) (µS/cm) (Visual) (S.U.) (NTU) (mg/l) (mV) feet below TOC Method: Low FLow deam 6.37 180 25.05 0,00 0.27 -155% 0835 PURGE DATA: Date: 1.8109 Volume рΗ S.C. Turb DO ORP SWL Temp. Time Z L 6.37 187 0.38 -95.0 19.98 3 07 LOWFLOW 0815 6.3( 182 25.0 00.0 11.05 -85.9 Monitor Reading (ppm): めゅき 3.2 0826 180 20.26 0.00 0.27 6.36 Well Casing Diameter & Material 0825 Type: 3/4" tvc 180 20.22 0.00 0.27 6.37 0830 Total Well Depth (TD): 14、3子 -155.0 1.869 Static Water Level (WL): 7.33 One Casing Volume (ga/L): 0,14 Start Purge (hrs): 070 55 0836 End Purge (hrs): Total Purge Time (min): Total Vol. Purged (gal**()**: SAMPLE COLLECTION INFORMATION: **Analysis** Preservative **Container Requirements** Collected VOCs HCI ZX 3 x 40 mL glass vial Lead, Manganese and Zinc HNO₃ 1 X 500 mL Polyethylene 2 K OBSERVATIONS / NOTES: Field dup conectes Purge work fit in well witobing, no sweduring Circle if Applicable: My sole MS/MSD **Duplicate ID No.:** 0,000 ET W MIS 92 AV

# APPENDIX B 2007 AND 2009 VALIDATED LABORATORY DATA



### INTERNAL CORRESPONDENCE

TO:

MR. G. WALKER

DATE:

**JULY 20, 2007** 

FROM:

**EDWARD SEDLMYER** 

COPIES:

**DV FILE** 

SUBJECT:

ORGANIC DATA VALIDATION- VOA/PAH/TPH

CTO 0056. NAS PENSACOLA

**SDG CTO056-5** 

SAMPLES:

13/Aqueous

PEN21GW4304 PEN21GW6001

PEN21GW5302 PEN21GW6101 PEN21GW5302D PEN21GW6201 PEN21GW6401D

PEN21GW6301 PEN21GW6501 PEN21GW6401 PEN21GW6601

TB050807

TRIP BLANK

### **OVERVIEW**

The sample set for CTO 0056, NAS Pensacola, SDG CTO056-5 consists of two (2) trip blanks and eleven (11) aqueous environmental samples. The following field duplicate pairs were associated with this SDG: PEN21GW5302 / PEN21GW5302D and PEN21GW6401 / PEN21GW6401D. All samples were analyzed for BTEX volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and total petroleum hydrocarbon (TPH). The trip blanks were analyzed for VOCs only.

The samples were collected by TetraTech NUS on April 25, May 8, and 9, 2007 and analyzed by Katahdin Analytical Services, Inc. All analyses were conducted in accordance with SW-846 Methods 8260B, 8270SIM, and FDEP FL-PRO (TPH) analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
  - Holding times
  - Initial/continuing calibrations
- Laboratory method blank results
- Field Duplicate Results
- **Detection Limits**

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data quality are discussed below: documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

### Volatiles

The trip blank was analyzed 27 days after sample collection. The non-detected results have been qualified as estimated (UJ).

### **PAHs**

Samples PEN21GW6101, PEN21GW6201, and PEN21GW6401D, were re-extracted by the laboratory because of surrogate recoveries below the quality control limits. The samples were re-extracted eight days outside of the extraction hold time. The original extracted results were used for validation. No qualification of the data was necessary because all recoveries were greater than 10%.

Samples PEN21GW6001, PEN21GW6101, PEN21GW6201, PEN21GW6301, PEN21GW6401, PEN21GW6401D, and PEN21GW6501 required dilutions for naphthalene, 1-methylnaphthalene, and/or 2-methylnaphthalene because of concentrations greater than the linear calibration range of the instrument. The naphthalene, 1-methylnaphthalene, and/or 2-methylnaphthalene results were reported from the diluted analyses. All other results are reported from the undiluted analysis.

The continuing calibration analyzed on 05/17/07 @11:13 had percent differences greater than 25% for dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene. No action was taken on this basis because the percent difference was less than 90%.

The continuing calibration analyzed on 05/18/07 @10:12 had percent differences greater than 25% for pyrene, benzo(a)anthracene, benzo(b)fluoranthene, and benzo(g,h,i)perylene. No action was taken on this basis because the percent difference was less than 90%.

### **TPH**

No qualification of the data was necessary.

### Additional Comments:

Positive results less than the reporting limit (RL) were qualified as estimated "J", due to uncertainty near the detection limit.

### **EXECUTIVE SUMMARY**

**Laboratory Performance Issues:** Hold time was exceeded for the trip blank. Continuing calibration noncompliances were noted for the PAH fraction.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the DoD QSM for Environmental Laboratories.

Tetra Tech NUS

Edward Sedlmyer Chemist/Data Validator

Joseph A. Samchuck

Çétrá∕Tech NU∕S

Data Validation Quality Assurance Officer

### Attachments:

Appendix A - Qualified Analytical Results

Appendix B – Results as Reported by the Laboratory

Appendix C - Support Documentation

# **APPENDIX A**

**QUALIFIED ANALYTICAL RESULTS** 

#### **Data Validation Qualifier Codes:**

A = Lab Blank Contamination

B = Field Blank Contamination

C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)

C01 = GC/MS Tuning Noncompliance

D = MS/MSD Recovery Noncompliance

E = LCS/LCSD Recovery Noncompliance

F = Lab Duplicate Imprecision

G = Field Duplicate Imprecision

H = Holding Time Exceedance

I = ICP Serial Dilution Noncompliance

J = GFAA PDS - GFAA MSA's r < 0.995 / ICP PDS Recovery Noncompliance

K = ICP Interference - includes ICS % R Noncompliance

L = Instrument Calibration Range Exceedance

M = Sample Preservation Noncompliance

N = Internal Standard Noncompliance

N01 = Internal Standard Recovery Noncompliance Dioxins

N02 = Recovery Standard Noncompliance Dioxins

N03 = Clean-up Standard Noncompliance Dioxins

O = Poor Instrument Performance (e.g. base-line drifting)

P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)

Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)

R = Surrogates Recovery Noncompliance

S = Pesticide/PCB Resolution

T = % Breakdown Noncompliance for DDT and Endrin

U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC

V = Non-linear calibrations; correlation coefficient r < 0.995

W = EMPC result

X = Signal to noise response drop

Y = Percent solids <30%

Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00583

SDG: CTO056-5 MEDIA: WATER DATA FRACTION: OV

nsample	PEN21GW4304			nsample	PEN21GW5302	3302		nsample	PEN21GW5302D	Ω	
samp_date	5/9/2007			samp_date	5/9/2007			samp_date	5/9/2007		
lab_id	SA2211-4			lab_id	SA2211-1			lab_id	SA2211-2		
qc_type	₩N			qc_type	ΣN			qc_type	ΣN		
	UG/L			units	UG/L			units	UG/L		
Pct_Solids	0.0			Pct_Solids	0.0			Pct_Solids	0.0		
DUP_OF:				DUP_OF:				DUP_OF:	PEN21GW5302		
		Val	Qual			Val	Qual				Qual
Parameter	Result Qual		Code	Parameter	Rě	Result Qual	Code	Parameter	Result Qual		Code
BENZENE	-			BENZENE		0.5 U		BENZENE	0.5	n	:
ETHYLBENZENE	0.3	n		ETHYLBENZENE		0.3		ETHYLBENZENE	0.3	o	
M+P-XYLENES	+	n		M+P-XYLENES		7		M+P-XYLENES	8		
O-XYLENE	0.4	n		O-XYLENE		-		O-XYLENE	-		
TOLUENE	0.4	n		TOLUENE		0.4		TOLUENE	0.4	n	
TOTAL XYLENES	<b>-</b>	n		TOTAL XYLENES		8		TOTAL XYLENES	6		

00583 PROJ_NO:

SDG: CTO056-5 MEDIA: WATER DATA FRACTION: OV

nsample	PEN21GW6001	<b></b> -		nsample	PEN21GW6101	10		nsample	PEN21GW6201	
samp_date lab_id	5/6/2007 SA2172-5			samp_date lab_id	5/6/2007 SA2172-3			samp_date lab_id	5/2/172-4	
qc_type	ΣN			qc_type	ΣN			qc_type	WN	
units	UG/L			units	UG/L			units	UG/L	
Pct_Solids	0.0			Pct_Solids	0.0			Pct_Solids	0.0	
DUP_OF:				DUP_OF:				DUP_OF:		
		Val	Qual			Val	Qual		Val Qual	<u>a</u>
Parameter	Result	Result Qual	Code	Parameter	Resn	Result Qual	Code	Parameter	Result Qual Code	de de
BENZENE	0.5	)		BENZENE	0.5	5 U		BENZENE	0.5 U	
ETHYLBENZENE	0.3	)		ETHYLBENZENE	0.3	3 (		ETHYLBENZENE	N	
M+P-XYLENES	-	<u></u>		M+P-XYLENES		<del>ا</del>		M+P-XYLENES	12	
O-XYLENE	0.4	ם		O-XYLENE	0.4	<b>⊅</b>		O-XYLENE	-1	
TOLUENE	0.4			TOLUENE	0.4	<b>→</b>		TOLUENE	0.4 U	
TOTAL XYLENES	1	n		TOTAL XYLENES		1 0		TOTAL XYLENES	13	

PROJ_NO: 00583

SDG: CT0056-5 MEDIA: WATER DATA FRACTION: OV

nsample	PEN21GW6301	21		nsample	PEN21GW6401	+-		nsample	PEN21GW6401D	_	
samp_date	5/8/2007			samp_date	5/8/2007			samp_date	5/8/2007		
lab_id	SA2172-8			lab_id	SA2172-1			lab_id	SA2172-2		
qc_type	ΣN			qc_type	MN			qc_type	MN		
units	UG/L			units	UG/L			units	NG/L		
Pct_Solids	0.0			Pct_Solids	0.0			Pct_Solids	0.0		
DUP_OF:				DUP_OF:				DUP_OF:	PEN21GW6401		
		Val	Qual			Val	Qual			Val	Qual
Parameter	Resul	Result Qual	Code	Parameter	Result	Qual	Code	Parameter	Result Qual		Code
BENZENE	0.5	D C		BENZENE	0.5	_ 		BENZENE	0.5	_	
ETHYLBENZENE	0.3	3 C		ETHYLBENZENE	0.3	n		ETHYLBENZENE	0.3	n	
M+P-XYLENES		<u>ا</u>		M+P-XYLENES	-	n		M+P-XYLENES	-	o.	
O-XYLENE	0.4	⊃		O-XYLENE	0.4	ר ס		O-XYLENE	0.4	o	
TOLUENE	0.4	⊃		TOLUENE	0.4	כ		TOLUENE	0.4	o l	
TOTAL XYLENES		1 O		TOTAL XYLENES	1	n		TOTAL XYLENES	<b>-</b>	n	

00583 PROJ_NO:

SDG: CTO056-5 MEDIA: WATER DATA FRACTION: OV

TB050807	5/8/2007	SA2172-6	ΝN	UG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
PEN21GW6601	5/8/2007	SA2172-13	MA	NG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
PEN21GW6501	5/8/2007	SA2172-7	ΣZ	NG/L	0.0	
nsample	samp_date	lab_id	dc_type	units	Pct_Solids	DUP_OF:

ı			_	_	_	_		
		Parameter	BENZENE	ETHYLBENZENE	M+P-XYLENES	O-XYLENE	TOLUENE	TOTAL XYLENES
	Qual	Code						
	Val	Qual	∍	n	n	n	n	n
		Result Qual Code	0.5	0.3	-	0.4	0.4	-
		Parameter	BENZENE	ETHYLBENZENE	M+P-XYLENES	O-XYLENE	TOLUENE	TOTAL XYLENES
	Qual	Code		Ф	Д			Д
	Val	Qual	<b> </b>	٦	٦	ם	ם	7
		Result	0.5	0.8	-	0.4	0.4	-
		Parameter	BENZENE	ETHYLBENZENE	M+P-XYLENES	O-XYLENE	TOLUENE	TOTAL XYLENES

Qual	-		Val.	Qual 0
eg Code	Parameter	Hesult		Code
	BENZENE	0.5	<b>¬</b>	
	ETHYLBENZENE	0.3	⊃	
	M+P-XYLENES	-	⊃	
	O-XYLENE	0.4	ם	
	TOLUENE	0.4	ם	
	TOTAL XYLENES	-	ם	

# 00583 PROJ_NO:

SDG: CT0056-5 MEDIA: WATER DATA FRACTION: OV

TRIP BLANK 4/25/2007 SA2211-5 NM UG/L samp_date Pct_Solids nsample qc_type lab_id units

0.0

DUP_OF:

Parameter	Result	Val Qual	Qual	
BENZENE	0.5	0.5 UJ	I	
ETHYLBENZENE	0.3	0.3 UJ	I	
M+P-XYLENES	-	3	I	
O-XYLENE	0.4	0.4 UJ	I	
TOLUENE	0.4	S	I	
TOTAL XYLENES	1	n	Н	

PROJ_NO: 00583

SDG: CTO056-5 MEDIA: WATER DATA FRACTION: PAH

	Qual			۵.											۵				
	Val Qual			<u>۔</u>	_	_			_	_	_		<b>-</b>		<u>۔</u>	_		_	5
Ω			_	_	Э	_	n	n	_	_ 	_	_	_	_	_			_ 	5
PEN21GW5302D 5/9/2007 SA2211-2 NM UG/L 0.0	Lab Result Qual	2	ď	0.2	0.06	0.06	0.07	0.05	0.08	0.09	0.1	0.07	0.1	0.06	0.1	0.1	-	0.05	0.06
PEN21GW 5/9/2007 SA2211-2 NM UG/L 0.0	Res				ö	ö	0	ö	ö	ö	J	ö		ö		٥		o	ö
ate S	Parameter	1-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	ACENAPHTHENE	ACENAPHTHYLENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	CHRYSENE	DIBENZO(A,H)ANTHRACENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PHENANTHRENE	NE THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERT
nsample samp_dat lab_id qc_type units Pct_Solid DUP_OF:		1-ME	2-MET	ACEN	ACEN	ANTH	BENZ	BENZ	BENZ	BENZ	BENZ	SHRY	DIBE	EUG O	FLIG	NO.	NAPH	PHEN	PYRENE
	Qual			۵.											<u>a</u>				
	Val Qual			7	- -	_	_	<b>&gt;</b>	>	>	<b>&gt;</b>	>	<b>&gt;</b>	<b>&gt;</b>	ے	<b>D</b>		>	>
Z,	Lab Qual		_	_	>	_	_	_	>	>	>	>	<b>&gt;</b>	כ	-	>		<b>&gt;</b>	5
PEN21GW5302 5/9/2007 SA2211-1 NM UG/L 0.0	Result (	N	7	0.2	90.0	90.0	0.07	0.05	0.08	0.09	0.1	0.07	0.1	90.0	0.2	0.1	-	0.05	90.0
PEN21GV 5/9/2007 SA2211-1 NM UG/L	ı.												-						
nsample samp_date lab_id qc_type units Pct_Solids DUP_OF:	Parameter	1-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	ACENAPHTHENE	ACENAPHTHYLENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	CHRYSENE	DIBENZO(A,H)ANTHRACENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PHENANTHRENE	PYRENE
	Qual	•		ட											<u>-</u>				
	Val Qual		n	7	o '	n	n	n	>	>	כ	>	Э	n	ſ	n		)	>
40	Lab Qual		ב	_	⊃	⊃	ם	)	_	>	_	>	⊃	⊃	_	n		_	Э
PEN21GW4304 5/9/2007 SA2211-4 NM UG/L	Result	4	0.07	0.2	0.06	0.06	0.07	0.05	0.08	0.09	0.1	0.07	0.1	90.0	0.2	0.1	0.3	0.05	90.0
PEN21GV 5/9/2007 SA2211-4 NM UG/L																			
nsample samp_date lab_id qc_type units DUP_OF:	Parameter	1-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	ACENAPHTHENE	ACENAPHTHYLENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	CHRYSENE	DIBENZO(A,H)ANTHRACENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PHENANTHRENE	PYRENE

# 00583 PROJ_NO:

SDG: CTO056-5 MEDIA: WATER DATA FRACTION: PAH

nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
PEN21GW6001DL	5/8/2007	SA2172-5DL	ΣN	UG/L	0.0	
nsample	samp_date	lab_id	qc_type	nnits	Pct_Solids	DUP_OF:
PEN21GW6001	5/8/2007	SA2172-5	ΣZ	UG/L	0.0	
nsample	samp_date	lab_id	dc_type	nnits	Pct_Solids	DUP_OF:

PEN21GW6101 5/8/2007

SA2172-3

NG/L Σ

0.0

Val Qual

					The same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the sa			П
		Lab	Val	Val Qual			Lab	_
Parameter	Result Qual	Qual	Qual	Code	Parameter	Result Qual		O
ACENAPHTHENE	0.4				1-METHYLNAPHTHALENE	18		
ACENAPHTHYLENE	2				2-METHYLNAPHTHALENE	22		1
ANTHRACENE	90.0	>	>					
BENZO(A)ANTHRACENE	0.07	<b> </b>	>					
BENZO(A)PYRENE	0.05	>	>					
BENZO(B)FLUORANTHENE	0.08	>	>					
BENZO(G,H,I)PERYLENE	0.0	_	>					
BENZO(K)FLUORANTHENE	0.1	_	>					
CHRYSENE	0.07	_	⊃					
DIBENZO(A,H)ANTHRACENE	0.1	>	>					
FLUORANTHENE	90.0	>	>					
FLUORENE	-							

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0.05 90.0

0.1

INDENO(1,2,3-CD)PYRENE

PHENANTHRENE NAPHTHALENE

PYRENE

Qual			Lab	Val	Qual
Code	Parameter	Result	Qual	Qual	Code
	ACENAPHTHENE	9.0			
	ACENAPHTHYLENE	90.0	>	כ	
	ANTHRACENE	90.0	>	n	
	BENZO(A)ANTHRACENE	0.07	Э	ח	
	BENZO(A)PYRENE	0.05	Э	Λ	
	BENZO(B)FLUORANTHENE	0.08	>	n	
	BENZO(G,H,I)PERYLENE	0.09	>	⊃	
	BENZO(K)FLUORANTHENE	0.1	)	n	
	CHRYSENE	0.07	n	n	
	DIBENZO(A,H)ANTHRACENE	0.1	Ω	n	
	FLUORANTHENE	90.0	n	n	
	FLUORENE	0.4			
	INDENO(1,2,3-CD)PYRENE	0.1	n	n	
	PHENANTHRENE	0.05	n	n	
	PYRENE	90.0	n	N	

# 00583 PROJ_NO:

SDG: CTO056-5 MEDIA: WATER DATA FRACTION: PAH

nsample	PEN21GW6101DL	nsample	PEN21GW6201	nsample	PEN21GW6201DL
samp_date	5/8/2007	samp_date	5/8/2007	samp_date	5/8/2007
lab_id	SA2172-3DL	lab_id	SA2172-4	lab_id	SA2172-4DL
qc_type	ΣZ	qc_type	WN	qc_type	WN
nnits	UG/L	units	NG/L	units	UG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP_OF:		DUP_OF:		DUP OF:	

Parameter	Result	Result Qual Qual Code	Lab Val Qual Qual Qual Code	Qual	Pa
1-METHYLNAPHTHALENE	81				ACENAPHTHENE
2-METHYLNAPHTHALENE	110				ACENAPHTHYLEN
NAPHTHALENE	110				ANTHRACENE

Result Qual Qual Code

3 8 8

=	-		Lab	Val	Qual	
Φ	Parameter	Result Qual	Qual	Qual	Code	Parameter
	ACENAPHTHENE	0.5				1-METHYLNAPHTHALENE
	ACENAPHTHYLENE	90.0	⊃	Þ		2-METHYLNAPHTHALENE
	ANTHRACENE	90.0	>	n		NAPHTHALENE
}	BENZO(A)ANTHRACENE	0.07	>	ח		
	BENZO(A)PYRENE	0.05	)	כ		
	BENZO(B)FLUORANTHENE	0.08	5	כ		
	BENZO(G,H,I)PERYLENE	0.0	>	>		
	BENZO(K)FLUORANTHENE	0.1	_	_		
	CHRYSENE	0.07	>	b		
	DIBENZO(A,H)ANTHRACENE	0.1	Э	>		
	FLUORANTHENE	90.0	>	5		
	FLUORENE	0.5				
	INDENO(1,2,3-CD)PYRENE	0.1		)		
	PHENANTHRENE	0.05	>	כ		
	PYRENE	90.0	<b></b>	כ		

PROJ_NO: 00583

SDG: CT0056-5 MEDIA: WATER DATA FRACTION: PAH

Parameter	Result Qual Qual	Na Va	Lab Itt Qual	Resu	Parameter	Qual	Val Qual Qual Code	Result Qual Qual Code	Result	Parameter
DUP_OF:					DUP_OF:					UP_OF:
Pct_Solids				0.0	Pct_Solids					Pct_Solids 0.0
units			,	UG/L	units				لے	nits UG/L
dc_type				Σ	qc_type					
lab_id			거	3A2172-8DL	lab_id				SA2172-8	
samp_date				3/8/2007	samp_date				/8/2007	t)
nsample		Į.	6301D	PEN21GW6301DL	nsample			V6301	EN21GW6	ш.

1-METHYLNAPHTHALENE

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0.08

BENZO(B)FLUORANTHENE

BENZO(A)PYRENE

BENZO(A)ANTHRACENE

**ACENAPHTHYLENE** 

ANTHRACENE

**ACENAPHTHENE** 

BENZO(G,H,I)PERYLENE

BENZO(K)FLUORANTHENE

CHRYSENE

0.05

0.07

90.0

DIBENZO(A,H)ANTHRACENE

FLUORANTHENE

FLUORENE

0.1

INDENO(1,2,3-CD)PYRENE

ココ

90.0

0.07

0.5

2-METHYLNAPHTHALENE

PEN21GW6401 5/8/2007 SA2172-1 NM

UG/L 0.0

Jual			Lab	Val	Qual	
ode	Parameter	Result	Qual	Qual	Code	
	ACENAPHTHENE	0.3				
	ACENAPHTHYLENE	90.0	n	n		
	ANTHRACENE	90.0	>	n		
	BENZO(A)ANTHRACENE	0.07	n	n		
	BENZO(A)PYRENE	0.05	_	n		
	BENZO(B)FLUORANTHENE	0.08	ם	n		
	BENZO(G,H,I)PERYLENE	60'0	ם	N		
	BENZO(K)FLUORANTHENE	0.1	ח	n		
	CHRYSENE	0.07	n	n ·		
	DIBENZO(A,H)ANTHRACENE	0.1	Λ	n		
	FLUORANTHENE	90.0	n	n		
	FLUORENE	0.4				
	INDENO(1,2,3-CD)PYRENE	0.1	n	n		
	NAPHTHALENE	l .				
	PHENANTHRENE	0.05	n	n		
	PYRENE	90.0	Ų	U		

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0.05

NAPHTHALENE PHENANTHRENE

PYRENE

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# 00583 PROJ_NO:

SDG: CTO056-5 MEDIA: WATER DATA FRACTION: PAH

PEN21GW6401DL	5/8/2007	SA2172-1DL	ΣZ	UG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
PEN21GW6401DDL	5/8/2007	SA2172-2DL	ΣZ	UG/L	0.0	PEN21GW6401
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
PEN21GW6401D	5/8/2007	SA2172-2	ΣZ	ng/L	0.0	PEN21GW6401
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:

Parameter

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0.07 0.1

DIBENZO(A,H)ANTHRACENE

FLUORANTHENE

FLUORENE

90.0

0.4

INDENO(1,2,3-CD)PYRENE

90.0

0.05

PHENANTHRENE NAPHTHALENE

PYRENE

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0.07 0.05 0.09 0.1

BENZO(A)ANTHRACENE

BENZO(A)PYRENE

**ACENAPHTHYLENE** 

ANTHRACENE

ACENAPHTHENE

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3ENZO(B)FLUORANTHENE

BENZO(G,H,I)PERYLENE

BENZO(K)FLUORANTHENE

CHRYSENE

Qual	Parameter	Result	Lab Qual	Lab Val Qual Qual Qual Code	Qual Code
	1-METHYLNAPHTHALENE	7			
	2-METHYLNAPHTHALENE	11			

# 00583 PROJ_NO:

SDG: CTO056-5 MEDIA: WATER DATA FRACTION: PAH

nsample	samp_date	lab_id	qc_type	nnits	Pct_Solids	DUP_OF:
PEN21GW6501DL	5/8/2007	SA2172-7DL	ΣZ	NG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
PEN21GW6501	5/8/2007	SA2172-7	ΣZ	UG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:

PEN21GW6601 5/8/2007 'SA2172-13 NM UG/L

		Lab	Val	Qual	
Parameter	Result Qual	Qual	Qual	Code	
ACENAPHTHENE	0.4				1-METHYLN
ACENAPHTHYLENE	0.4				2-METHYLN
ANTHRACENE	90.0	)	_		NAPHTHALE
BENZO(A)ANTHRACENE	0.07	)	ם		
BENZO(A)PYRENE	0.05	>	⊃		
BENZO(B)FLUORANTHENE	0.08	>	_		
BENZO(G,H,I)PERYLENE	0.0	⊃	n		
BENZO(K)FLUORANTHENE	0.1	ם	n		
CHRYSENE	0.07	n	n		
DIBENZO(A,H)ANTHRACENE	0.1	n	⊃		
FLUORANTHENE	90.0	n	_		
FLUORENE	9.0				
INDENO(1,2,3-CD)PYRENE	0.1	⊃	⊃		
PHENANTHRENE	0.05	U	n		
PYRENE	90.0	n	b		

Parameter	Lab Result Qual	Val Qual Qual Qual	Val Qual Qual Code	
-METHYLNAPHTHALENE	16			1-ME
-METHYLNAPHTHALENE	16			2-ME
APHTHALENE	8			ACEN
				i

			Lab	Val	Qual
Φ	Parameter	Result	Qual	Qual	Code
·	1-METHYLNAPHTHALENE	0.2	)	⊃	
	2-METHYLNAPHTHALENE	0.3			
	ACENAPHTHENE	0.2	_	٢	Ф.
l	ACENAPHTHYLENE	90.0	Û	n	
	ANTHRACENE	90.0	n	n	
	BENZO(A)ANTHRACENE	0.07	n	n	
	BENZO(A)PYRENE	0.05	)	n	
	BENZO(B)FLUORANTHENE	0.08	)	n	
	BENZO(G,H,I)PERYLENE	0.09	⊃	n	
	BENZO(K)FLUORANTHENE	0.1	n	n	
	CHRYSENE	0.07	⊃	n	
	DIBENZO(A,H)ANTHRACENE	0.1	n	n	
	FLUORANTHENE	0.06	U	n	
	FLUORENE	0.1	_	٢	ם
	INDENO(1,2,3-CD)PYRENE	0.1	n	n	
	NAPHTHALENE	0.1	_	ſ	۵
	PHENANTHRENE	0.2			
	PYRENE	0.06	n	n	
					l

PROJ_NO: 00583

SDG: CTO056-5 MEDIA: WATER DATA FRACTION: PET

nsample	PEN21GW4304RA2	nsample	PEN21GW5302DRA2	nsample	PEN21GW5302RA2
samp_date	5/9/2007	samp_date	5/9/2007	samp_date	5/9/2007
lab_id	SA2211-4RA2	lab_id	SA2211-2RA2	lab_id	SA2211-1RA2
dc_type	ΣZ	qc_type	WN	qc_type	ΣZ
nnits	UG/L	units	UG/L	units	UG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP OF:		DUP OF:	PEN21GW5302	DUP OF	

DUP_OF:		DUP_OF:	PEN21GW5302		DUP_OF:			
Parameter	Result Qual Qual Code	al Parameter	Lab Val Qual Result Qual Qual Code	Val Qual Qual Code	Parameter	Result Qual Qual Code	Val Qual	Qual
TPH (C08-C40)	3100	TPH (C08-C40)	950		TPH (C08-C40)	1000		

00583 PROJ_NO:

SDG: CTO056-5 MEDIA: WATER DATA FRACTION: PET

nsample	PEN21GW6001DL2	nsample	PEN21GW6101	nsample	PEN21GW6201DL2	
samp_date	5/8/2007	samp_date	5/8/2007	samp_date	5/8/2007	
lab_id	SA2172-5DL2	lab_id	SA2172-3	lab_id	SA2172-4DL2	
dc_type	NA	qc_type	∑Z.	qc_type	ΣZ	
nnits	UG/L	units	UG/L	units	UG/L	
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0	
DUP_OF:		DUP OF:		DUP OF:		

		13000	TPH (C08-C40)	5300	TPH (C08-C40)				8800	TPH (C08-C40)
Val Qual Qual Code	Lab Va Qual Qua	Result Qual Qual Code	Parameter	Result Qual Qual Code	Parameter	Qual	Result Qual Qual Code	Lab Qual	Result	Parameter
			DUP_OF:		DUP_OF:					DUP_OF:
			Pct_Solids 0.0	0.0	Pct_Solids				0	Pct_Solids 0.0
		_	units UG/L	UG/L	units				JG/L	units
			qc_type NM	ΣZ	qc_type				ΣN	Φ
		SA2172-4DL2	lab_id SA2	SA2172-3	lab_id			٥ļ	SA2172-5DL2	lab_id S,
		5/8/2007	samp_date 5/8/2	5/8/2007	samp_date				5/8/2007	samp_date 5/
	DL2	PEN21GW6201DL2	nsample PEN	PEN21GW6101	nsample		ΛI	001DL	PEN21GW6001DL2	nsample

00583 PROJ_NO:

SDG: CTO056-5 MEDIA: WATER DATA FRACTION: PET

PEN21GW6401DL	5/8/2007	SA2172-1DL	ΣZ	UG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
PEN21GW6401DDL	5/8/2007	SA2172-2DL	ΣZ	NG/L	0.0	PEN21GW6401
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
PEN21GW6301DL	5/8/2007	SA2172-8DL	ΣZ	ng/L	0.0	
nsample	samp_date	lab_id	dc_type	nnits	Pct_Solids	DUP_OF:

DUP_OF:				DUP_OF: P	PEN21GW6401	101			DUP_OF:		1
Parameter	Lab Result Qual	Q Va	l Qual	Parameter	Result	Lab Qual	Result Qual Qual Code	ual ode	Parameter	Lab Result Qual	<del></del>
TPH (C08-C40)	11000			TPH (C08-C40)	12000				TPH (C08-C40)	10000	+

Qual			Lab	Val	Qual
Sode	Parameter	Result	Result Qual Qual Code	Qual	Code
	TPH (C08-C40)	10000			

# PROJ_NO: 00583

SDG: CTO056-5 MEDIA: WATER DATA FRACTION: PET

nsample	PEN21GW6501DL	nsample	PEN21GW6601
samp_date	5/8/2007	samp_date	5/8/2007
lab_id	SA2172-7DL	lab_id	SA2172-13
dc_type	NM	qc_type	WN
units	NG/L	units	UG/L
Pct_Solids	0.0	Pct_Solids	0.0
ם כו		פול מול	

1	Parameter	TPH (C08-C40)	
Qual •	e Code		
\alpha	Cual		
Lab	Result Qual Qual Code		
. (	Hesult	13000	
	Parameter	TPH (C08-C40)	

Result Qual Qual Code

400

# APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/09/07 Received Date: 05/10/07

Extraction Date:

Analysis Date: 22-MAY-2007 17:00

Report Date: 05/30/2007

Matrix: WATER % Solids: NA

Lab ID: SA2211-4

Client ID: PEN21GW4304

SDG: CTO056-5 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39163

Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
71-43-2	Benzene		1	1.0	1	1	0.5
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
	m+p-Xylenes	σ	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	ប	0.4	1.0	1	1	0.4
1330-20-7	Xylenes (total)	σ	1	1.0	3	3	1
1868-53-7	Dibromofluoromethane		898				
17060-07-0	1,2-Dichloroethane-D4		84%				
2037-26-5	Toluene-D8		86%				
460-00-4	P-Bromofluorobenzene		92%				
	Page	01 of 01	S4635.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/09/07
Received Date: 05/10/07

Extraction Date:

Analysis Date: 21-MAY-2007 18:18

Report Date: 05/30/2007

Matrix: WATER % Solids: NA

Lab ID: SA2211-1

Client ID: PEN21GW5302

SDG: CT0056-5 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39146

Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
108-88-3	Toluene	ਧ	0.4	1.0	1	1	0.4
71-43-2	Benzene	ΰ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
	m+p-Xylenes		7 .	1.0	2	2	1.0
95-47-6	o-xylene		1	1.0	1	1	0.4
1330-20-7	Xylenes (total)		8	1.0	3	3	1
1868-53-7	Dibromofluoromethane		79등	_,,	5	3	т.
17060-07-0	1,2-Dichloroethane-D4		76%				
2037-26-5	Toluene-D8		86%				
460-00-4	P-Bromofluorobenzene		86%				

Page 01 of 01 \$4602.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/09/07 Received Date: 05/10/07

Extraction Date:

Analysis Date: 21-MAY-2007 18:48

Report Date: 05/30/2007

Matrix: WATER % Solids: NA

Lab ID: SA2211-2

Client ID: PEN21GW5302D

SDG: CTO056-5 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39146

Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
	m+p-Xylenes		8	1.0	2	2	1.0
95-47-6	o-Xylene		1	1.0	1	1	0.4
1330-20-7	Xylenes (total)		9	1.0	3	.3	1
1868-53-7	Dibromofluoromethane		81%				_
17060-07-0	1,2-Dichloroethane-D4		75%			• .	
2037-26-5	Toluene-D8		86%			٠.	
460-00-4	P-Bromofluorobenzene		87%				

Page 01 of 01 S4603.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date:

Analysis Date: 19-MAY-2007 20:17

Report Date: 05/30/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-5 Client ID: PEN21GW6001

SDG: CT0056-5 Extracted by:

Extraction Method: SW846 5030

Analyst: DMF

Analysis Method: SW846 8260B

Lab Prep Batch: WG39123

Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
108-88-3	Toluene	ਧ	0.4	1.0	1	1	0.4
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
	m+p-Xylenes	σ	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	σ	0.4	1.0	1	1	0.4
1330-20-7	Xylenes (total)	σ	1	1.0	3	3	1
1868-53-7	Dibromofluoromethane		79%				
17060-07-0	1,2-Dichloroethane-D4		72등				
2037-26-5	Toluene-D8	• .	888				
460-00-4	P-Bromofluorobenzene		89%				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date:

Analysis Date: 19-MAY-2007 19:15

Report Date: 05/30/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-3 Client ID: PEN21GW6101

SDG: CT0056-5 Extracted by:

Extraction Method: SW846 5030

Analyst: DMF

Analysis Method: SW846 8260B

Lab Prep Batch: WG39123

Units: ug/l

S4575.D

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQI	Adj.MDL
108-88-3	Toluene	υ	0.4	1.0	1	1	0.4
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	υ	0.3	1.0	1	1	0.3
	m+p-Xylenes	σ .	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	ΰ	0.4	1.0	1	1	0.4
1330-20-7	Xylenes (total)	σ	1	1.0	3	3	1
1868-53-7	Dibromofluoromethane		80%				
17060-07-0	1,2-Dichloroethane-D4		75%				
2037-26-5	Toluene-D8		86%				
460-00-4	P-Bromofluorobenzene		89%				

01 of 01

Page

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date:

Analysis Date: 19-MAY-2007 19:46

Report Date: 05/30/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-4 Client ID: PEN21GW6201

SDG: CT0056-5 Extracted by:

Extraction Method: SW846 5030

Analyst: DMF

Analysis Method: SW846 8260B

Lab Prep Batch: WG39123

Units: ug/l

S4576.D

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
108-88-3	Toluene	ซ	0.4	1.0	. 1	1	0.4
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene		2	1.0	1	1	0.3
	m+p-Xylenes		12	1.0	2	2	1.0
95-47-6	o-Xylene		1	1.0	1	1	0.4
1330-20-7	Xylenes (total)		13	1.0	3	3	1
1868-53-7	Dibromofluoromethane		80%				
17060-07-0	1,2-Dichloroethane-D4	-	73%				
2037-26-5	Toluene-D8		888				
460-00-4	P-Bromofluorobenzene		91%				

01 of 01

Page

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date:

Analysis Date: 21-MAY-2007 17:16

Report Date: 05/30/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-8

Client ID: PEN21GW6301

SDG: CT0056-5 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39146

Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
	m+p-Xylenes	σ	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	σ	0.4	1.0	1	1	0.4
1330-20-7	Xylenes (total)	ש	1	1.0	3	. 3	1
1868-53-7	Dibromofluoromethane		82%				
17060-07-0	1,2-Dichloroethane-D4		73%				
2037-26-5	Toluene-D8		87%				
460-00-4	P-Bromofluorobenzene		93%				

Page 01 of 01 S4600.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date:

Analysis Date: 19-MAY-2007 18:13

Report Date: 05/30/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-1

Client ID: PEN21GW6401

SDG: CTO056-5 Extracted by:

Extraction Method: SW846 5030

Analyst: DMF

Analysis Method: SW846 8260B

Lab Prep Batch: WG39123

Units: ug/l

CAS#	Compound	Flags	Results	DF	POL	Adi.POL	Adj.MDL
108-88-3	Toluene	Ū	0.4	1.0	1	1	0.4
71-43-2	Benzene	ਧ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	U	0.3	1.0	1	1	0.3
	m+p-Xylenes	σ	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	ਹ	0.4	1.0	1	ī	0.4
1330-20-7	Xylenes (total)	σ	1	1.0	3	3	1
1868-53-7	Dibromofluoromethane		89%		_	-	-
17060-07-0	1,2-Dichloroethane-D4		87%				
2037-26-5	Toluene-D8		87%				
460-00-4	P-Bromofluorobenzene		91%				
	Page	01 of 01	S4573.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date:

Analysis Date: 19-MAY-2007 18:44

Report Date: 05/30/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-2

Client ID: PEN21GW6401D

SDG: CT0056-5 Extracted by:

Extraction Method: SW846 5030

Analyst: DMF

Analysis Method: SW846 8260B

Lab Prep Batch: WG39123

Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
108-88-3	Toluene	σ	0.4	1.0	1	1 .	0.4
71-43-2	Benzene	υ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	υ σ	0.3	1.0	1	1	0.3
	m+p-Xylenes	σ	1.0	1.0	2	2	1.0
95-47-6	o-Kylene	ប	0.4	1.0	1	1	0.4
1330-20-7	Xylenes (total)	σ	1	1.0	3	3	1
1868-53-7	Dibromofluoromethane		86%				
17060-07-0	1,2-Dichloroethane-D4		80%				
2037-26-5	Toluene-D8		86%				
460-00-4	P-Bromofluorobenzene		91%				

Page 01 of 01 S4574.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date:

Analysis Date: 21-MAY-2007 16:45

Report Date: 05/30/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-7

Client ID: PEN21GW6501

SDG: CT0056-5 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39146

Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
108-88-3	Toluene	υ	0.4	1.0	1	1	0.4
71-43-2	Benzene	ប	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	I	0.8	1.0	1	1	0.3
	m+p-Xylenes	I	1	1.0	2	2	1.0
95-47-6	o-Xylene	υ	0.4	1.0	1	1	0.4
1330-20-7	Xylenes (total)	·I	1	1.0	3	3	1.
1868-53-7	Dibromofluoromethane		89%		_	-	
17060-07-0	1,2-Dichloroethane-D4		83%				
2037-26-5	Toluene-D8		888				
460-00-4	P-Bromofluorobenzene		93%				

Page 01 of 01 S4599.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date:

Analysis Date: 21-MAY-2007 17:47

Report Date: 05/30/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-13 Client ID: PEN21GW6601

SDG: CT0056-5 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39146

Units: ug/1

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	σ .	0.3	1.0	1	1	0.3
	m+p-Xylenes	σ	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	ប	0.4	1.0	1 .	1	0.4
1330-20-7	Xylenes (total)	σ	1	1.0	3	3	1
1868-53-7	Dibromofluoromethane		83%			3	1
17060-07-0	1,2-Dichloroethane-D4		75%				
2037-26-5	Toluene-D8		87%				
460-00-4	P-Bromofluorobenzene		90%				

Page 01 of 01 S4601.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date:

Analysis Date: 19-MAY-2007 15:38

Report Date: 05/30/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-6 Client ID: TB050807 SDG: CT0056-5

Extracted by:

Extraction Method: SW846 5030

Analyst: -DMF

Analysis Method: SW846 8260B

Lab Prep Batch: WG39123

Units: ug/l

S4568.D

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
71-43-2	Benzene	Ū	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
	m+p-Xylenes	σ	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	σ	0.4	1.0	1		
1330-20-7	Xylenes (total)		1	1.0	3	1	0.4
1868-53-7	Dibromofluoromethane	<b>Q</b>	86%	1.0		3	['] 1
17060-07-0	1,2-Dichloroethane-D4		81%				
2037-26-5	Toluene-D8		87%				
460-00-4	P-Bromofluorobenzene		87% 87%				

01 of 01

Page

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 04/25/07 Received Date: 05/10/07

Extraction Date:

Analysis Date: 22-MAY-2007 09:42

Report Date: 05/30/2007

Matrix: WATER % Solids: NA

Lab ID: SA2211-5 Client ID: TRIP BLANK

SDG: CTO056-5 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39163

Units: ug/1

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQI	Adj.MDL
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
71-43-2	Benzene	_ ਹ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
	m+p-Xylenes	σ	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	σ.	0.4	1.0	. 1	1	0.4
1330-20-7	Xylenes (total)	σ	1	1.0	3	3	1.
1868-53-7	Dibromofluoromethane		. 89%				
17060-07-0	1,2-Dichloroethane-D4		86%				
2037-26-5	Toluene-D8		85%				
460-00-4	P-Bromofluorobenzene		87%				
•							ř

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/09/07 Received Date: 05/10/07

Extraction Date: 05/15/07

Analysis Date: 17-MAY-2007 18:38

Report Date: 05/18/2007

Matrix: WATER % Solids: NA

Lab ID: SA2211-4

Client ID: PEN21GW4304

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		0.3	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	σ	0.07	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		4	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	υ.	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene	I	0.2	1.0	0.2	0.2	0.07
86-73-7	Fluorene	I	0.2	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	ΰ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	υ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	ד	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	υ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	υ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	υ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	σ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	ΰ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	ט	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		75%				
81103-79-9	Fluorene-d10		60%				
1718-52-1	Pyrene-d10		61%				

Page 01 of 01 U7965.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/09/07
Received Date: 05/10/07
Extraction Date: 05/15/07

Analysis Date: 17-MAY-2007 17:04

Report Date: 05/18/2007

Matrix: WATER % Solids: NA

Lab ID: SA2211-1

Client ID: PEN21GW5302

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

•							
CAS#	Compound	Flags	Results	DF	PQL	Adj.POL	Adj.MDL
91-20-3	Naphthalene		1	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	J	2	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		2	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	υ .	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene	I	0.2	1.0	0.2	0.2	0.07
86-73-7	Fluorene	I	0.2	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	ט	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	ט	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	U	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a) anthracene	τ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b) fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k) fluoranthene	σ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a) pyrene	ט	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	ד	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo (a,h) anthracene	υ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		62%		•	0.2	0.1
81103-79-9	Fluorene-d10		58%				
1718-52-1	Pyrene-d10		83%				
	-		-				

Page 01 of 01 U7963.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/09/07
Received Date: 05/10/07
Extraction Date: 05/15/07

Analysis Date: 17-MAY-2007 17:50

Report Date: 05/18/2007

Matrix: WATER % Solids: NA

Lab ID: SA2211-2

Client ID: PEN21GW5302D

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		1	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	Ţ	2	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		2	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene	I	0.2	1.0	0.2	0.2	0.07
86-73-7	Fluorene	ī	0.1	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	ΰ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	℧ .	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a) anthracene	υ .	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b) fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	σ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	ਧ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	σ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		68%				
81103-79-9	Fluorene-d10		59%				
1718-52-1	Pyrene-d10		82%				

Page 01 of 01 U7964.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 19:08

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-5

Client ID: PEN21GW6001

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL.	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		4	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	L	18	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	Ŀ	26	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene		.2	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		0.4	1.0	0.2	0.2	0.07
86-73-7	Fluorene		1	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	σ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	υ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	υ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	σ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo (a) pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	σ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		112%				
81103-79-9	Fluorene-d10		J141%				
1718-52-1	Pyrene-d10		99%				

01 of 01

R4237.D

Page

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07 Extraction Date: 05/10/07

Analysis Date: 18-MAY-2007 14:28

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-5DL Client ID: PEN21GW6001

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi POL	Adj.MDL
91-20-3	Naphthalene		5	5.0	0.2	1	0.6
91-57-6	2-Methylnaphthalene		22	5.0	0.2	1	0.4
90-12-0	1-Methylnaphthalene		18	5.0	0.2	1	0.8
208-96-8	Acenaphthylene		2	5.0	0.2	1	0.3
83-32-9	Acenaphthene	r	0.5	5.0	0.2	1	0,4
86-73-7	Fluorene		2	5.0	0.2	1	0.4
85-01-8	Phenanthrene	ד	0.2	5.0	0.2	1	0.2
120-12-7	Anthracene	σ	0.3	5.0	0.2	1	0.3
206-44-0	Fluoranthene	σ	0.3	5.0	0.2	1	0.3
129-00-0	Pyrene	<b>U</b> .	0.3	5.0	0.2	1	0.3
56-55-3	Benzo(a)anthracene	σ	0.4	5.0	0.2	1	0.4
218-01-9	Chrysene	υ	0.4	5.0	0.2	1	0.4
205-99-2	Benzo(b)fluoranthene	. σ	0.4	5.0	0.2	1	0.4
207-08-9	Benzo(k)fluoranthene	ד	0.6	5.0	0.2	1	0.6
50-32-8	Benzo (a) pyrene	σ	0.2	5.0	0.2	1	0.2
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.5	5.0	0.2	1	0.5
191-24-2	Benzo(g,h,i)perylene	U	0.4	5.0	0.2	1	0.4
53-70-3	Dibenzo(a,h)anthracene	σ	0.6	5.0	0.2	1	0.6
7297-45-2	2-Methylnaphthalene-d10		100%		• • •	~	0.0
81103-79-9	Fluorene-d10		J180%				
1718-52-1	Pyrene-d10		94%				

Page 01 of 01 R4249.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07 Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 17:40

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-3

Client ID: PEN21GW6101

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CA	4a#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL	
91	L-20-3	Naphthalene	L	59	1.0	0.2	0.2	0.1	
91	L-57-6	2-Methylnaphthalene	L	67	1.0	0.2	0.2	0.07	
90	0-12-0	1-Methylnaphthalene	L	180	1.0	0.2	0.2	0.1	
20	8-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06	
83	3-32-9	Acenaphthene		0.6	1.0	0.2	0.2	0.07	
86	5-73-7	Fluorene		0.4	1.0	0.2	0.2	0.07	
85	5-01-8	Phenanthrene	ਧ	0.05	1.0	0.2	0.2	0.05	
12	20-12-7	Anthracene	ਧ	0.06	1.0	0.2	0.2	0.06	
20	6-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06	
12	9-00-0	Pyrene	σ	0.06	1.0	0.2	0.2	0.06	
56	5-55-3	Benzo(a) anthracene	σ	0.07	1.0	0.2	0.2	0.07	
21	.8-01-9	Chrysene	σ	0.07	1.0	0.2	0,2	0.07	
20	5-99-2	Benzo(b) fluoranthene	, Ū	0.08	1.0	0.2	0.2	0.08	
20	7-08-9	Benzo(k)fluoranthene	σ	0.1	1.0	0.2	0.2	0.1	
50	-32-8	Benzo(a)pyrene	υ	0.05	1.0	0.2	0.2	0.05	
19	3-39-5	Indeno(1,2,3-cd)pyrene	σ	0.10	1.0	0.2	0.2	0.10	
19	1-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09	
53	-70-3	Dibenzo(a,h)anthracene	σ	0.1	1.0	0.2	0.2	0.1	
72	97-45-2	2-Methylnaphthalene-d10		46%		•			
81	103-79-9	Fluorene-d10		J 39%					
17	18-52-1	Pyrene-d10		J 26%					

01 of 01

R4235.D

Page

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07 Extraction Date: 05/10/07

Analysis Date: 18-MAY-2007 13:03

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-3DL Client ID: PEN21GW6101

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		110	25	0.2	5	3
91-57-6	2-Methylnaphthalene		110	25	0.2	5	2
90-12-0	1-Methylnaphthalene		81	25	0.2	5	4
208-96-8	Acenaphthylene	υ	1	25	0.2	5	1
83-32-9	Acenaphthene	υ	2	25	0.2	5	2
86-73-7	Fluorene	σ	2	25	0.2	5	2
85-01-8	Phenanthrene	σ	1	25	0.2	5	1
120-12-7	Anthracene	ט	. 1	25	0.2	5	1
206-44-0	Fluoranthene	σ	1	25	0.2	5	1
129-00-0	Pyrene	ਧ	1	25	0.2	5	1
56-55-3	Benzo(a) anthracene	σ	2	25	0.2	5	. 2
218-01-9	Chrysene	σ	2	25	0.2	- 5	2
205-99-2	Benzo(b) fluoranthene	σ	2	25	0.2	5	2
207-08-9	Benzo(k)fluoranthene	σ	3	25	0.2	5	3
50-32-8	Benzo(a)pyrene	σ	1	25	0.2	5	1
193-39-5	Indeno(1,2,3-cd)pyrene	σ	2	25	0.2	5	2
191-24-2	Benzo(g,h,i)perylene	σ	2	25	0.2	· 5	2
53-70-3	Dibenzo(a,h)anthracene	σ	3	25	0.2	5	3
7297-45-2	2-Methylnaphthalene-d10		D				
81103-79-9	Fluorene-d10		מ				
1718-52-1	Pyrene-d10		D				

01 of 01

R4247.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07
Received Date: 05/09/07
Extraction Date: 05/23/07

Analysis Date: 31-MAY-2007 20:17

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-3RE Client ID: PEN21GW6101

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3520

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG39220

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene	· L	99	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	L	720	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	L	84	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	ΰ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		1	1.0	0.2	0.2	0.07
86-73-7	Fluorene		0.6	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	I	0.2	1.0	0.2	0.2	0.05
120-12-7	Anthracene	Ū	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	σ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	υ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	υ.	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	ט	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	σ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		90%				0.1
81103-79-9	Fluorene-d10		68%				
1718-52-1	Pyrene-d10		83%				
			•				

01 of 01

U8116.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date: 05/23/07

Analysis Date: 31-MAY-2007 17:44

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-3REDL Client ID: PEN21GW6101

SDG: CT0056-5 Extracted by: GN

Extraction Method: SW846 3520

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG39220

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		130	30	0.2	6	4
91-57-6	2-Methylnaphthalene		140	30	0.2	6	2
90-12-0	1-Methylnaphthalene		120	30	0.2	6	4
208-96-8	Acenaphthylene	σ	2	30	0.2	6	2
83-32-9	Acenaphthene	σ	2	30	0.2	6	2
86-73-7	Fluorene	σ	2	30	0.2	6	2
85-01-8	Phenanthrene	. <b>ប</b>	2	30	0.2	6	2
120-12-7	Anthracene	ט	2	30	0.2	6	2
206-44-0	Fluoranthene	σ	2	30	0.2	6	2
129-00-0	Pyrene	σ	2	30	0.2	6	2
56-55-3	Benzo(a)anthracene	σ	2	30	0.2	6	. 2
218-01-9	Chrysene	σ	2	30	0.2	6	2
205-99-2	Benzo(b)fluoranthene	σ	. 2	30	0.2	6	2
207-08-9	Benzo(k)fluoranthene	σ	3	30	0.2	6	3
50-32-8	Benzo(a)pyrene	σ	2	30	0.2	6	2
193-39-5	Indeno(1,2,3-cd)pyrene	σ	3	30	0.2	6	3
191-24-2	Benzo(g,h,i)perylene	σ	3	30	0.2	6	3
53-70-3	Dibenzo(a,h)anthracene	σ	4	30	0.2	6	4
7297-45-2	2-Methylnaphthalene-d10		D				
81103-79-9	Fluorene-d10		D				
1718-52-1	Pyrene-d10		D				

Page 01 of 01 U8113.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07 Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 18:24

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-4

Client ID: PEN21GW6201

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
91-20-3	Naphthalene	· L	50	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	L	50	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	L	120	1.0	0.2	0.2	0.1
208-96-8	Acenaphthylene	σ	0.06	1.0	0,2	0.2	0.06
83-32-9	Acenaphthene		0.5	1.0	0.2	0.2	0.07
86-73-7	Fluorene		0.5	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	σ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	ਧ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	σ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	. σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k) fluoranthene	σ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	ΰ	0.10	1.0	0.2	0.2	0.10
191-24-2	Benzo(g,h,i)perylene	ש	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	υ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		74%				
81103-79-9	Fluorene-d10		82%				
1718-52-1	Pyrene-d10		J 32%				
					•		

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07 Extraction Date: 05/10/07

Analysis Date: 18-MAY-2007 13:46

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-4DL Client ID: PEN21GW6201

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		93	20	0.2	4	2
91-57-6	2-Methylnaphthalene		81	20	0.2	4	1
90-12-0	1-Methylnaphthalene		65	20	0.2	4	3
208-96-8	Acenaphthylene	σ	1	20	0.2	4	1
83-32-9	Acenaphthene	σ	1	20	0.2	4	1
86-73-7	Fluorene	σ	1	20	0.2	4	1
85-01-8	Phenanthrene	σ	1.0	20	0.2	4	1.0
120-12-7	Anthracene	ប	1	20	0.2	4	1
206-44-0	Fluoranthene	σ	1	20	0.2	4	1
129-00-0	Pyrene	ਧ	1	20	0.2	4	1
56-55-3	Benzo(a)anthracene	σ	1	20	0.2	4	1
218-01-9	Chrysene	. σ	1	20	0.2	4	1
205-99-2	Benzo(b)fluoranthene	ט	2	20	0.2	4	2
207-08-9	Benzo(k)fluoranthene	υ	2	20	0.2	4	2
50-32-8	Benzo(a)pyrene	σ	1.0	20	0.2	4	1.0
193-39-5	Indeno(1,2,3-cd)pyrene	υ	2	20	0.2	4	2
191-24-2	Benzo(g,h,i)perylene	σ.	2	20	0.2	4	2
53-70-3	Dibenzo(a,h)anthracene	σ	2	20	0.2	4	2
7297-45-2	2-Methylnaphthalene-d10		D				
81103-79-9	Fluorene-d10		D				
1718-52-1	Pyrene-d10		D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date: 05/23/07

Analysis Date: 31-MAY-2007 21:10

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-4RE Client ID: PEN21GW6201

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3520

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG39220

Units: ug/L

U8117.D

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene	L	91	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	L	340	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	L	64	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		0.8	1.0	0.2	0.2	0.07
86-73-7	Fluorene		0.6	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	υ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	σ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	ប	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	· 😈	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	σ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	σ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		93%	•			
81103-79-9	Fluorene-d10		85%				
1718-52-1	Pyrene-d10	•	52%				

01 of 01

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07
Received Date: 05/09/07
Extraction Date: 05/23/07

Analysis Date: 31-MAY-2007 18:34

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-4REDL Client ID: PEN21GW6201

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3520

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG39220

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adi.MDL
91-20-3	Naphthalene		120	100	0.2	20	12
91-57-6	2-Methylnaphthalene		73	100	0.2	20	7
90-12-0	1-Methylnaphthalene		97	100	0.2	20	15
208-96-8	Acenaphthylene	σ	. 6	100	0.2	20	6
83-32-9	Acenaphthene	σ	7	100	0.2	20	7
86-73-7	Fluorene	. 0	7	100	0.2	20	7
85-01-8	Phenanthrene	σ	5	100	0.2	20	5
120-12-7	Anthracene	σ	6	100	0.2	20	6
206-44-0	Fluoranthene	υ	6	100	0.2	20	6
129-00-0	Pyrene	σ	6	100	0.2	20	6
56-55-3	Benzo(a)anthracene	σ	7	100	0.2	20	7
218-01-9	Chrysene	υ	7	100	0.2	20	7
205-99-2	Benzo(b)fluoranthene	υ	. 8	100	0.2	20	8
207-08-9	Benzo(k) fluoranthene	σ	.11	100	0.2	20	11
50-32-8	Benzo(a)pyrene	υ	5	100	0.2	20	5
193~39-5	Indeno(1,2,3-cd)pyrene	σ	10	100	0.2	20	10
191-24-2	Benzo(g,h,i)perylene	σ	9	100	0.2	20	9
53-70-3	Dibenzo(a,h)anthracene	σ	12	100	0.2	20	12
7297-45-2	2-Methylnaphthalene-d10		D				
81103-79-9	Fluorene-d10		D				
1718-52-1	Pyrene-d10		D	•			

U8114.D

01 of 01

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 20:36

Report Date: 06/05/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-8

Client ID: PEN21GW6301

SDG: CT0056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		0.9	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene		5	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	L	7	1.0	0.2	0.2	0.1
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		0.5	1.0	0.2	0.2	0.07
86-73-7	Fluorene		0.5	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	ΰ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	σ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	ΰ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	ד	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.10	1.0	0.2	0.2	0.10
191-24-2	Benzo(g,h,i)perylene	υ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	ប	. 0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		74%				
81103-79-9	Fluorene-d10		83%				
1718-52-1	Pyrene-d10		7 <b>7</b> %				

Page 01 of 01 R4239.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07 Extraction Date: 05/10/07

Analysis Date: 18-MAY-2007 15:54

Report Date: 06/06/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-8DL Client ID: PEN21GW6301

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi Por	Adj.MDL
91-20-3	Naphthalene	•	1.0	2.0	0.2	0.4	0.2
91-57-6	2-Methylnaphthalene		5	2.0	0,2	0.4	0.1
90-12-0	1-Methylnaphthalene		. 6	2.0	0.2	0.4	0.3
208-96-8	Acenaphthylene	σ	0.1	2.0	0.2	0.4	0.1
83-32-9	Acenaphthene		0.7	2.0	0.2	0.4	0.1
86-73-7	Fluorene		0.5	2.0	0.2	0.4	0.1
85-01-8	Phenanthrene	σ	0.10	2.0	0.2	0.4	0.10
120-12-7	Anthracene	ប	0.1	2.0	0.2	0.4	0.1
206-44-0	Fluoranthene	σ	0.1	2.0	0.2	0.4	0.1
129-00-0	Pyrene	σ	0.1	2.0	0.2	0.4	0.1
56-55-3	Benzo(a)anthracene	σ	0.1	2.0	0.2	0.4	0.1
218-01-9	Chrysene	ט	0.1	2.0	0.2	0.4	0.1
205-99-2	Benzo(b)fluoranthene	U	0.2	2.0	0.2	0.4	0.2
207-08-9	Benzo(k)fluoranthene	σ	0.2	2.0	0.2	0.4	0.2
50-32-8	Benzo(a)pyrene	υ	0.10	2.0	0.2	0.4	0.10
193-39-5	Indeno(1,2,3-cd)pyrene	, U	0.2	2.0	0.2	0.4	0.2
191-24-2	Benzo(g,h,i)perylene	σ	0.2	2.0	0.2	0.4	0.2
53-70-3	Dibenzo(a,h)anthracene	σ	0.2	2.0	0.2	0.4	0.2
7297-45-2	2-Methylnaphthalene-d10		80왕				
81103-79-9	Fluorene-d10		86%				
1718-52-1	Pyrene-d10		85%				

Page 01 of 01 R4251.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07 Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 16:15

Report Date: 06/05/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-1

Client ID: PEN21GW6401

SDG: CT0056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi. POL	Adj.MDL
91-20-3	Naphthalene	_	1	1.0	0,2	0.2	0.1
91-57-6	2-Methylnaphthalene	L	9	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	L	8	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		0.3	1.0	0.2	0.2	0.07
86-73-7	Fluorene		0.4	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	ਧ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	Ü	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	υ,	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	ΰ	0.06	1.0	0.2	0.2	0.06
56- <b>55-</b> 3	Benzo(a)anthracene	ט	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	σ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	υ .	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	υ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		72%				
81103-79-9	Fluorene-d10		85%				
1718-52-1	Pyrene-d10		62%				

Page 01 of 01 R4233.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07
Received Date: 05/09/07
Extraction Date: 05/10/07

Analysis Date: 18-MAY-2007 11:38

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-1DL Client ID: PEN21GW6401

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi. POL	Adj.MDL
91-20-3	Naphthalene	-	1	3.0	0.2	0.6	0.4
91-57-6	2-Methylnaphthalene		11	3.0	0.2	0.6	0.2
90-12-0	1-Methylnaphthalene		7	3.0	0.2	0.6	0.4
208-96-8	Acenaphthylene	ֿע	0.2	3.0	0.2	0.6	0.2
83-32-9	Acenaphthene	I ·	0.4	3.0	0.2	0.6	0.2
86-73-7	Fluorene	I	0.5	3.0	0.2	0.6	0.2
85-01-8	Phenanthrene	σ	0.2	3.0	0.2	0.6	0.2
120-12-7	Anthracene	σ	0.2	3.0	0.2	0.6	0.2
206-44-0	Fluoranthene	υ	0.2	3.0	0.2	0.6	0.2
129-00-0	Pyrene	σ	0.2	3.0	0.2	0.6	0.2
56-55-3	Benzo(a)anthracene	U.	0.2	3.0	0.2	0.6	0.2
218-01-9	Chrysene	σ	0.2	3.0	0.2	0.6	0.2
205-99-2	Benzo(b)fluoranthene	σ	0.2	3.0	0.2	0.6	0.2
207-08-9	Benzo(k)fluoranthene	σ	0.3	3.0	0.2	0.6	0.3
50-32-8	Benzo(a)pyrene	υ	0.2	3.0	0.2	0.6	0.2
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.3	3.0	0.2	0.6	0.3
191-24-2	Benzo(g,h,i)perylene	" ס	0.3	3.0	0.2	0.6	0.3
53-70-3	Dibenzo(a,h)anthracene	σ	0.4	3.0	0.2	0.6	0.4
7297-45-2	2-Methylnaphthalene-d10		74%				
81103-79-9	Fluorene-d10		74%				
1718-52-1	Pyrene-d10		53%				
	•						

Page 01 of 01 R4245.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07
Received Date: 05/09/07
Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 16:58

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-2

Client ID: PEN21GW6401D

SDG: CT0056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL	
91-20-3	Naphthalene		0.9	1.0	0.2	0.2	0.1	
91-57-6	2-Methylnaphthalene	L	8	1.0	0.2	0,2	0.07	
90-12-0	1-Methylnaphthalene	L	7	1.0	0.2	0.2	0.1	
208-96-8	Acenaphthylene	υ	0.06	1.0	0.2	0.2	0.06	
83-32-9	Acenaphthene		0,3	1.0	0.2	0.2	0.07	
86-73-7	Fluorene		0.4	1.0	0.2	0.2	0.07	
85-01-8	Phenanthrene	σ	0.05	1.0	0.2	0.2	0.05	
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06	
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06	
129-00-0	Pyrene	σ	0.06	1.0	0.2	0.2	0.06	
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.07	
218-01-9	Chrysene	υ	0.07	1.0	0.2	0.2	0.07	
205-99-2	Benzo(b) fluoranthene	σ	0.08	1.0	0.2	0.2	0.08	
207-08-9	Benzo(k) fluoranthene	σ	0.1	1.0	0.2	0.2	0.1	
50-32-8	Benzo(a)pyrene	ט	0.05	1.0	0.2	0.2	0.05	
193-39-5	Indeno(1,2,3-cd)pyrene	· 😈	0.10	1.0	0.2	0.2	0.10	
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09	
53-70-3	Dibenzo(a,h)anthracene	ט	0.1	1.0	0.2	0.2	0.1	
7297-45-2	2-Methylnaphthalene-d10		73 ዓ					
81103-79-9	Fluorene-d10		81%					
1718-52-1	Pyrene-d10		J 46%					

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07
Received Date: 05/09/07
Extraction Date: 05/10/07

Analysis Date: 18-MAY-2007 12:21

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-2DL Client ID: PEN21GW6401D

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		1	3.0	0.2	0.6	0.3
91-57-6	2-Methylnaphthalene		10	3.0	0.2	0.6	0.2
90-12-0	1-Methylnaphthalene		7	3.0	0.2	0.6	0.4
208-96-8	Acenaphthylene	σ	0.2	3.0	0.2	0.6	0.2
83-32-9	Acenaphthene	I	0.4	3.0	0.2	0.6	0.2
86-73-7	Fluorene	I	0.4	3.0	0.2	0.6	0.2
85-01-8	Phenanthrene	σ	0.1	3.0	0.2	0.6	. 0.1
120-12-7	Anthracene	σ	0.2	3.0	0.2	0.6	0.2
206-44-0	Fluoranthene	σ	0.2	3.0	0.2	0.6	0.2
129-00-0	Pyrene	ΰ	0.2	3.0	0.2	0.6	0.2
56-55-3	Benzo(a)anthracene	σ	0.2	3.0	0.2	0.6	0.2
218-01-9	Chrysene	σ	0.2	3.0	0.2	0.6	0.2
205-99-2	Benzo(b)fluoranthene	σ	0.2	3.0	0.2	0.6	0.2
207-08-9	Benzo(k)fluoranthene	υ .	0.3	3.0	0.2	0.6	0.3
50-32-8	Benzo(a)pyrene	υ	0.1	3.0	0.2	0.6	0.1
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.3	3.0	0.2	0.6	0.3
191-24-2	Benzo(g,h,i)perylene	σ	0.3	3.0	0.2	0.6	0.3
53-70-3	Dibenzo(a,h)anthracene	σ	0.3	3.0	0.2	0.6	0.3
7297-45-2	2-Methylnaphthalene-d10		71%				
81103-79-9	Fluorene-d10		68%				
1718-52-1	Pyrene-d10		J 47%				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date: 05/23/07

Analysis Date: 31-MAY-2007 19:25

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-2RE Client ID: PEN21GW6401D

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3520

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG39220

Units: ug/L

U8115.D

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
91-20-3	Naphthalene		0.9	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	L	10	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	L	7	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		0.3	1.0	0.2	0.2	0.07
86-73-7	Fluorene		0.4	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	σ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	υ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	σ .	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1,0	0.2	0.2	0.07
218-01-9	Chrysene	υ.	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b) fluoranthene	σ	0.08 ,	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	ΰ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	σ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		76ቄ				
81103-79-9	Fluorene-d10		84%				
1718-52-1	Pyrene-d10		J 44%				

01 of 01

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07

Extraction Date: 05/23/07

Analysis Date: 31-MAY-2007 17:00

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-2REDL Client ID: PEN21GW6401D

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3520

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG39220

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		1	3.0	0.2	0.6	0.4
91-57-6	2-Methylnaphthalene		8	3.0	0.2	0.6	0.2
90-12-0	1-Methylnaphthalene		7	3.0	0.2	0.6	0.4
208-96-8	Acenaphthylene	ד	0.2	3.0	0.2	0.6	0.2
83-32-9	Acenaphthene	I	0.4	3.0	0.2	0.6	0.2
86-73-7	Fluorene	I	0.4	3.0	0.2	0.6	0.2
85-01-8	Phenanthrene	υ	0.2	3.0	0.2	0.6	0,2
120-12-7	Anthracene	. υ	0.2	3.0	0.2	0.6	0.2
206-44-0	Fluoranthene	σ	0.2	3.0	0.2	0.6	0.2
129-00-0	Pyrene	σ.	0.2	3.0	0.2	0.6	0.2
56-55-3	Benzo(a) anthracene	σ	0.2	3.0	0.2	0.6	0.2
218-01-9	Chrysene	σ .	0.2	3.0	0.2	0.6	0.2
205-99-2	Benzo(b)fluoranthene	σ	0.2	3.0	0.2	0.6	0.2
207-08-9	Benzo(k)fluoranthene	σ	0.3	3.0	0.2	0.6	0.3
50-32-8	Benzo(a)pyrene	σ	0.2	3.0	0.2	0.6	0.2
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.3	3.0	0.2	0.6	0.3
191-24-2	Benzo(g,h,i)perylene	σ	0.3	3.0	0.2	0.6	0.3
53-70-3	Dibenzo(a,h)anthracene	σ	0.4	3.0	0.2	0.6	0.4
7297-45-2	2-Methylnaphthalene-d10		76%				
81103-79-9	Fluorene-d10		648				
1718-52-1	Pyrene-d10		54%				

01 of 01

U8112.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07
Received Date: 05/09/07
Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 19:52

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-7

Client ID: PEN21GW6501

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi. Pot	Adj.MDL	
91-20-3	Naphthalene	Ŀ	6	1.0	0.2	0.2	0.1	
91-57-6	2-Methylnaphthalene	L	13	1.0	0.2	0.2	0.07	
90-12-0	1-Methylnaphthalene	L	18	1.0	0.2	0.2	0.2	
208-96-8	Acenaphthylene		0.4	1.0	0.2	0.2	0.06	
83-32-9	Acenaphthene		0.4	1.0	0.2	0,2	0.07	
86-73-7	Fluorene		0.6	1.0	0.2	0.2	0.07	
85-01-8	Phenanthrene	σ	0.05	1.0	0.2	0.2	0.07	
120-12-7	Anthracene	ט	0.06	1.0	0.2	0.2	0.05	
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06	
129-00-0	Pyrene	σ	0.06	1.0	0.2	0.2	0.06	
56-55-3	Benzo(a)anthracene	ΰ	0.07	1.0	0.2	0.2	0.08	
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2		
205-99-2	Benzo(b)fluoranthene	υ	0.08	1.0	0.2	0.2	0.07	
207-08-9	Benzo(k) fluoranthene	· <b>U</b>	0.1	1.0	0.2	0.2	0.08	
50-32-8	Benzo(a)pyrene	Ū	0.05	1.0	0.2	0.2	0.1	
193-39-5	Indeno(1,2,3-cd)pyrene	ਧ	0.03	1.0	0.2		0.05	
191-24-2	Benzo(g,h,i)perylene	Ū	0.09	1.0	0.2	0.2	0.1	
53-70-3	Dibenzo (a, h) anthracene	์ บ	0.03	1.0		0.2	0.09	
7297-45-2	2-Methylnaphthalene-d10	Ü	J165%	1.0	0.2	0.2	0.1	
81103-79-9	Fluorene-d10		J136%					
1718-52-1	Pyrene-d10		67%					
	-1		6/6					

01 of 01

R4238.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07
Received Date: 05/09/07
Extraction Date: 05/10/07

Analysis Date: 18-MAY-2007 15:11

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-7DL Client ID: PEN21GW6501

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		. 8	4.0	0.2	0.8	0.5
91-57-6	2-Methylnaphthalene		16	4.0	0.2	0.8	0.3
90-12-0	1-Methylnaphthalene		16	4.0	0.2	0.8	0.6
208-96-8	Acenaphthylene	. α	0.2	4.0	0.2	0.8	0.2
83-32-9	Acenaphthene	I	0.6	4.0	0.2	0.8	0.3
86-73-7	Fluorene		0.8	4.0	0.2	0.8	0.3
85-01-8	Phenanthrene	ΰ.	0.2	4.0	0.2	0.8	0.2
120-12-7	Anthracene	σ	0.2	4.0	0.2	0.8	0.2
206-44-0	Fluoranthene	σ	0.2	4.0	0.2	0.8	0.2
129-00-0	Pyrene	σ	0.2	4.0	0.2	0.8	0.2
56-55-3	Benzo(a)anthracene	σ	0.3	4.0	0.2	0.8	0.3
218-01-9	Chrysene	σ	0.3	4.0	0.2	0.8	0.3
205-99-2	Benzo(b)fluoranthene	σ	0.3	4.0	0.2	0.8	0.3
207-08-9	Benzo(k)fluoranthene	σ	0.4	4.0	0.2	0.8	0.4
50-32-8	Benzo(a)pyrene	υ	0.2	4.0	0.2	0.8	0.2
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.4	4.0	0.2	0.8	0.4
191-24-2	Benzo(g,h,i)perylene	σ	0.4	4.0	0.2	0.8	0.4
53-70-3	Dibenzo(a,h)anthracene	σ	0.5	4.0	0.2	0.8	0.5
7297-45-2	2-Methylnaphthalene-d10		87%				
81103-79-9	Fluorene-d10		78%				
1718-52-1	Pyrene-d10		70%				

Page 01 of 01 R4250.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07
Received Date: 05/09/07
Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 21:20

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

· Lab ID: SA2172-13 Client ID: PEN21GW6601

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
91-20-3	Naphthalene	I	0.1	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene		0.3	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	σ	0.2	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene	I	0.2	1.0	0.2	0.2	0.07
86-73-7	Fluorene	I	0.1	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene		0.2	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	σ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	ט	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	. 0.2	0.2	0.05
193-39-5	Indeno (1,2,3-cd) pyrene	σ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	Ū	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	σ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		78%				
81103-79-9	Fluorene-d10		72%				
1718-52-1	Pyrene-d10		100%				

Page 01 of 01 R4240.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/09/07 Received Date: 05/10/07 Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 22:34

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2211-4RA2 Client ID: PEN21GW4304

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS# Compound Flags Results DF PQL Adj.PQL Adj.MDL Petroleum Range Organics 3100 1.0 500 500 300 n-Triacontane-D62 95% O-Terphenyl 97%

Page 01 of 01 CAE1110.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/09/07 Received Date: 05/10/07 Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 21:19

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2211-2RA2 Client ID: PEN21GW5302D

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#

Compound Petroleum Range Organics

n-Triacontane-D62

O-Terphenyl

Flags

Results DF 950

103왕

103%

500

PQL Adj.PQL Adj.MDL

1.0

500

290

Page 01 of 01 CAE1109.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/09/07 Received Date: 05/10/07 Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 20:03

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2211-1RA2 Client ID: PEN21GW5302

SDG: CT0056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

1.0

500

Lab Prep Batch: WG38927

Units: ug/L

CAS# Compound

Petroleum Range Organics

n-Triacontane-D62

O-Terphenyl

Flags

Results DF PQL Adj.PQL Adj.MDL 500

290

1000 98%

998

01 of 01 Page

CAE1108.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07 Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 16:37

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-5DL2 Client ID: PEN21GW6001

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

5.0

Lab Prep Batch: WG38763

Units: ug/L

CAS#

Compound

Flags

Results  $\mathbf{DF}$ 8800

PQL Adj.PQL Adj.MDL 2500

1500

500

Petroleum Range Organics

n-Triacontane-D62

O-Terphenyl

97%

101%

01 of 01 Page

CAE1070.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07 Extraction Date: 05/10/07

Analysis Date: 14-MAY-2007 18:28

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-3

Client ID: PEN21GW6101

SDG: CT0056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

 $\mathtt{DF}$ 

1.0

500

Lab Prep Batch: WG38763

Units: ug/L

CAS# Compound

Flags

Results

PQL Adj.PQL Adj.MDL

290

500

Petroleum Range Organics

n-Triacontane-D62 O-Terphenyl

5300 95왕

100%

Page 01 of 01 CAE1037.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07 Extraction Date: 05/10/07

Analysis Date: 18-MAY-2007 17:57

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-4DL2 Client ID: PEN21GW6201

SDG: CT0056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

DF

5.0

Lab Prep Batch: WG38763

Units: ug/L

CAS#

Compound

Flags

Results

PQL Adj.PQL Adj.MDL

2400

13000

500

140

90%

O-Terphenyl

n-Triacontane-D62

Petroleum Range Organics

99%

Page 01 of 01

CAE1085.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07 Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 17:51

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-8DL Client ID: PEN21GW6301

SDG: CTO056-5
Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38763

Units: ug/L

CAS# Compound

Petroleum Range Organics n-Triacontane-D62

O-Terphenyl

Flags R

Results DF 11000 5.0

PQL Adj.PQL Adj.MDL 500 2400 1400

96%

101%

Page 01 of 01

CAE1071.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07 Extraction Date: 05/10/07

Analysis Date: 15-MAY-2007 22:58

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-2DL Client ID: PEN21GW6401D

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38763

Units: ug/L

CAS# Compound Flags Results DF PQL Adj.PQL Adj.MDL Petroleum Range Organics 12000 10 500 5000 2900 n-Triacontane-D62 D O-Terphenyl D

Page 01 of 01 CAE1059.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07
Received Date: 05/09/07
Extraction Date: 05/10/07

Analysis Date: 15-MAY-2007 21:43

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-1DL Client ID: PEN21GW6401

SDG: CTO056-5
Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38763

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics		10000	10	500	5000	2900
	n-Triacontane-D62		D				
	O-Terphenyl	,	D		•		

Page 01 of 01 CAE1058.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07 Extraction Date: 05/10/07

Analysis Date: 16-MAY-2007 01:29

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-7DL Client ID: PEN21GW6501

SDG: CTO056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38763

Units: ug/L

CAS# Compound Flags Results  $\mathtt{DF}$ PQL Adj.PQL Adj.MDL Petroleum Range Organics 13000 10 500 4900 2900 n-Triacontane-D62 D O-Terphenyl D

Page 01 of 01 CAE1061.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/08/07 Received Date: 05/09/07 Extraction Date: 05/10/07

Analysis Date: 14-MAY-2007 17:12

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2172-13 Client ID: PEN21GW6601

SDG: CT0056-5 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38763

Units: ug/L

CAS#

Compound Petroleum Range Organics

n-Triacontane-D62

O-Terphenyl

Flags Results I

DF400

1.0

PQL Adj.PQL Adj.MDL 500 530

310

100왕 102%

01 of 01 Page

CAE1036.d



### **Tetra Tech NUS**

### INTERNAL CORRESPONDENCE

TO:

**G. WALKER** 

DATE:

**JUNE 20, 2007** 

FROM:

**MATTHEW D. KRAUS** 

COPIES:

**DV FILE** 

SUBJECT:

**INORGANIC DATA VALIDATION – LEAD** 

NAS PENSACOLA - CTO 056 SDGs - CTO056-1 & CTO056-2

SAMPLES:

8/Aqueous/CTO056-1

DP03WL11-15 DP07WL10-12 DP04WL11-15 DP08WL10-12 DP06WL10-12

DP10WL10-12

DP11WL10-12

DP09WL10-12

6/Aqueous/CTO056-2

DP27WL10-14

DP28WL9-13

DP29WL10-14

DP30WL10-14

DP31WL10-14

DP32WL10-14

### **Overview**

The sample sets SDG CTO056-1 and SDG CTO056-2 for NAS Pensacola, CTO 056, consist of eight and six aqueous environmental samples, respectively.

All samples were analyzed for total lead by Katahdin Analytical Services. Tetra Tech NUS collected samples for SDG CTO056-1 from April 30 – May 2, 2007 and samples for SDG CTO056-2 on May 4, 2007. Lead analyses were conducted according to SW-846 method 6010B and Inductively Coupled Plasma – Atomic Emission Spectrometry (ICP-AES) methodology.

Data were evaluated based on the following parameters:

- Data Completeness
- Holding Times
- Calibration Recoveries
- Laboratory Method/Preparation Blank Analyses
- Detection Limits
- * All quality control criteria were met for this parameter.

### Data Completeness

The laboratory did not report instrumental raw data for SDG CTO056-1.

TO:

WALKER, G. - PAGE 2

DATE:

**JUNE 20, 2007** 

### Executive Summary

**Laboratory Performance:** The laboratory did not report instrumental raw data for SDG CTO056-1

### Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Data Review", October 2004, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the DoD QSM and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS Matthew D. Kraus

**Environmental Chemist** 

Joseph A. Samchuck Quality Assurance Officer

Ara Tech NU\$

### Attachments:

- 1. Appendix A Qualified Analytical Results
- 2. Appendix B Results as reported by the Laboratory
- 3. Appendix C Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

# **Data Validation Qualifier Codes:**

Lab Blank Contamination

Field Blank Contamination

= Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)

C01 = GC/MS Tuning Noncompliance

MS/MSD Recovery Noncompliance

 LCS/LCSD Recovery Noncompliance Ε

F Lab Duplicate Imprecision

= Field Duplicate Imprecision G

Н = Holding Time Exceedance

= ICP Serial Dilution Noncompliance

= GFAA PDS - GFAA MSA's r < 0.995

= ICP Interference - includes ICS % R Noncompliance

= Instrument Calibration Range Exceedance L

Sample Preservation Noncompliance M

N Internal Standard Noncompliance

N01 = Internal Standard Recovery Noncompliance Dioxins

N02 = Recovery Standard Noncompliance Dioxins

N03 = Clean-up Standard Noncompliance Dioxins

Poor Instrument Performance (e.g. base-line drifting)

P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)

= Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.) Q

R Surrogates Recovery Noncompliance

S = Pesticide/PCB Resolution

= % Breakdown Noncompliance for DDT and Endrin T

 % Difference between columns/detectors >25% for positive results determined via GC/HPLC U

V. = Non-linear calibrations; correlation coefficient r < 0.995

W = EMPC result

Signal to noise response drop

Ÿ = Percent solids <30%

Ż Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00583 SDG: CTO056-1 MEDIA: WATER DATA FRACTION: M

nsample	DP03WL11-15	nsample	DP04WL11-15	nsample	DP06WL10-12
samp_date	4/30/2007	samp_date	5/1/2007	samp_date	5/1/2007
lab_id	SA2051-001	lab_id	SA2051-002	lab_id	SA2051-004
qc_type	NA	_dc_type	ΣŽ	qc_type	ΣZ
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP_OF:		DUP_OF:		DUP_OF:	

Qual	
Val Qual	
Result	334
Parameter	LEAD
Oual Code	
Val Qual	
Result	57.4
Parameter	LEAD
Qual	
Val	
Result	147

Parameter

LEAD

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		0
		ζV
		%
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		19/2
		(6/19/2
		[6/19/2
		16/19/2
		3 [6/19/2
		13 [6/19/2
		of 3 [6/19/2
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	·	age 1 of 3 [6/19/2
		Page 1 of 3 [6/19/2007 2:49:44 PM]

00583 PROJ_NO:

SDG: CT0056-1 MEDIA: WATER DATA FRACTION: M

Qual	Val Result Qual	Result	Parameter	Qual	Val Result Qual	Result	Parameter	Val Qual Result Qual	Val Qual	Result	Parameter
			DUP_OF:				DUP_OF:				DUP_OF:
			Pct_Solids 0.0				Pct_Solids 0.0				Pct_Solids 0.0
			units UG/L				units UG/L			_1	units UG/L
			qc_type NM				qc_type NM				qc_type NM
		SA2051-007				3A2051-006	lab_id SA2			SA2051-005	
		75/2007	Φ			5/2/2007	samp_date 5/2/2			5/1/2007	samp_date 5/1/2
		DP09WL10-12	nsample DP0			DP08WL10-12	_			7WL10-12	nsample DP0

19.6

LEAD

6.5

LEAD

LEAD

# PROJ_NO: 00583

SDG: CTO056-1 MEDIA: WATER DATA FRACTION: M

	DUP_OF:	William III. The second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the	DUP_OF:
0.0	Pct_Solids	0.0	Pct_Solids
ng/L	units	UG/L	units
WN	qc_type	N. N. N. N. N. N. N. N. N. N. N. N. N. N	qc_type
SA2051-008	lab_id	SA2051-003	lab_id
5/2/2007	samp_date	5/1/2007	samp_date
DP11WL10-12	nsample	DP10WL10-12	nsample

Parameter	LEAD
Qual Code	
Val Qual	
Result	423
Parameter	LEAD

		Val	Qual
Parameter	Result	Qual	Code
LEAD	26.6		

# PROJ_NO: 00583

SDG: CTO056-2 MEDIA: WATER DATA FRACTION: M

nsample	DP27WL10-14	nsample		nsample	DP29WL10-14
samp_date	5/4/2007	samp_date	5/4/2007	samp_date	5/4/2007
lab_id	SA2118-001	lab_id	SA2118-002	lab_id	SA2118-003
qc_type	WZ	qc_type	MN	qc_type	ΨZ
units	UG/L	units	UG/L	units	NG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter Res	l Ħ	Val Qual	Qual Code	Parameter	Result	Val Qual	Qual
	6.8			LEAD	1.6		

LEAD

1.2

Qual

Val Result Qual

Parameter

00583 PROJ_NO:

SDG: CTO056-2 MEDIA: WATER DATA FRACTION: M

Qual	Val			Qual	Val			Qual	Val Qual		
			DUP_OF:				DUP_OF:				DUP_OF:
		0.0					Pct_Solids 0.0				oct_Solids 0.0
		UG/L	units			ÚG/L	units				nits UG/L
		ΣZ	qc_type N				qc_type NM		•		qc_type NM
		3A2118-006	o,			SA2118-005				3A2118-004	0,
		1/4/2007	samp_date 5			3/4/2007	samp_date 55			/4/2007	
		DP32WL10-14	_			<b>JP31WL10-14</b>	nsample D			DP30WL10-14	sample DP3

73.5

LEAD

63.5

LEAD

9.4

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APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: DP03WL11-15

Matrix: WATER

SDG Name:

CTO056-1

Percent Solids: 0.00

Lab Sample ID: SA2051-001

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted	PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	147			P	1		5.0	0.91

Bottle ID: A

ı

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: DP04WL11-15

Matrix: WATER

SDG Name:

CTO056-1

Percent Solids: 0.00

Lab Sample ID: SA2051-002

Concentration Units: ug/L

CAS No.	Analyte	Concentration C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	57.4		P	1	5.0	0.91

Bottle ID: A

Lab Name: Katahdin Analytical Services

Client Field ID: DP06WL10-12

Matrix: WATER

SDG Name:

CTO056-1

Percent Solids: 0.00

Lab Sample ID: SA2051-004

 $Concentration\ Units: ug/L$ 

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	334			P	1	5.0	0.91

Bottle ID: A

#### l

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: DP07WL10-12

Matrix: WATER

SDG Name:

CTO056-1

Percent Solids: 0.00

Lab Sample ID: SA2051-005

Concentration Units: ug/L

CAS No.	Analyte		Concentration	С	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	,	3.0	I		P	1	5.0	0.91

Bottle ID: A

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: DP08WL10-12

Matrix: WATER

SDG Name:

CTO056-1

Percent Solids: 0.00

Lab Sample ID: SA2051-006

Concentration Units: ug/L

CAS No.	Analyte	Concentration (	2	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	6.5			P	1	5.0	0.91

Bottle ID: A

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: DP09WL10-12

Matrix: WATER

SDG Name:

CTO056-1

Percent Solids: 0.00

Lab Sample ID: SA2051-007

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	19.6			P	1	5.0	0.91

Bottle ID: A

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: DP10WL10-12

Matrix: WATER

SDG Name:

CTO056-1

Percent Solids: 0.00

Lab Sample ID: SA2051-003

 $\textbf{Concentration Units: } ug\!/\!L$ 

CAS No.	Analyte	Concentration	C	Q	M	ÐF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	423			P	1	5.0	0.91

Bottle ID: A

l

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: DP11WL10-12

Matrix: WATER

SDG Name:

CTO056-1

Percent Solids: 0.00

Lab Sample ID: SA2051-008

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	26.6			P	1	5.0	0.91

Bottle ID: A

Lab Name: Katahdin Analytical Services

Client Field ID: DP27WL10-14

Matrix: WATER

SDG Name:

CTO056-2

Percent Solids: 0.00

Lab Sample ID: SA2118-001

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	1.2	I		P	1	5.0	0.91

Color Before: N/A

Clarity Before: N/A

Color After: N/A

Clarity After: N/A

Bottle ID: A

l

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: DP28WL9-13

Matrix: WATER

SDG Name:

CTO056-2

Percent Solids: 0.00

Lab Sample ID: SA2118-002

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	6.8			P	1	5.0	0.91

Color Before: N/A

Clarity Before: N/A

Color After: N/A

Clarity After: N/A

Bottle ID: A

l

#### **INORGANIC ANALYSIS DATA SHEET**

Lab Name: Katahdin Analytical Services

Client Field ID: DP29WL10-14

Matrix: WATER

SDG Name:

CTO056-2

Percent Solids: 0.00

Lab Sample ID: SA2118-003

Concentration Units: ug/L

CAS No.	Analyte _	Concentration	,C	Q	M	DF	Adjusted PQL Adjusted IDL	ı
7439-92-1	LEAD, TOTAL	1.6	I		P	1	5.0 0.91	

Color Before: N/A

Clarity Before: N/A

Color After: N/A

Clarity After: N/A

Bottle ID: A

Lab Name: Katahdin Analytical Services

Client Field ID: DP30WL10-14

Matrix: WATER

SDG Name:

CTO056-2

Percent Solids: 0.00

Lab Sample ID: SA2118-004

Concentration Units: ug/L

CAS No.	Analyte	Concentration	•	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	9.4		P	1	5.0	0.91

Color Before: N/A

Clarity Before: N/A

Color After: N/A

Clarity After: N/A

Bottle ID: A

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#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: DP31WL10-14

Matrix: WATER

SDG Name:

CTO056-2

Percent Solids: 0.00

Lab Sample ID: SA2118-005

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C Q	M		Adjusted PQL	
7439-92-1	LEAD, TOTAL	63.5		P	1	5.0	0.91

Color Before: N/A

Clarity Before: N/A

Color After: N/A

Clarity After: N/A

Bottle ID: A

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: DP32WL10-14

Matrix: WATER

SDG Name: CTO056-2

Percent Solids: 0.00

Lab Sample ID: SA2118-006

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q N	1 DF	Adjusted PQL	
7439-92-1	LEAD, TOTAL	73.5		F	1	5.0	0.91

Color Before: N/A

Clarity Before: N/A

Color After: N/A

Clarity After: N/A

Bottle ID: A



# **Tetra Tech NUS**

# INTERNAL CORRESPONDENCE

TO:

**G. WALKER** 

DATE:

**JULY 13, 2007** 

FROM:

MATTHEW D. KRAUS

COPIES:

**DV FILE** 

SUBJECT:

**INORGANIC DATA VALIDATION – LEAD** 

NAS PENSACOLA - CTO 056

SDG - CTO056-6

SAMPLES:

7/Aqueous/

PEN21GW31R01

PEN21GW46R01

PEN21GW5401

PEN21GW7301

PEN21GW7401

PEN21GW7501

PEN21GW7601

#### **Overview**

The sample set for NAS Pensacola, CTO 056, SDG CTO056-6, consists of seven aqueous environmental samples which were collected by Tetra Tech NUS on May 10, 2007 and analyzed for total lead by Katahdin Analytical Services. Lead analyses were conducted using SW-846 method 6010B and Inductively Coupled Plasma – Atomic Emission Spectrometry (ICP-AES) methodology.

Data were evaluated based on the following parameters:

- Data Completeness
  - Holding Times
- Calibration Recoveries
  - Laboratory Method/Preparation Blank Analyses
- Detection Limits
- * All quality control criteria were met for this parameter.

#### **Holding Times**

Samples PEN21GW31R01 and PEN21GW5401 were not properly preserved (nitric acid was not added to the samples). Sample PEN21GW31R01 was qualified as estimated, "J", due to sample preservation noncompliance and sample PEN21GW5401 was qualified due to laboratory blank contamination.

# Laboratory Method/Preparation Blank Analyses

The following contaminant was detected in the laboratory method/preparation blanks at the following maximum concentration:

Maximum

Action '

Analyte Lead ⁽¹⁾ Concentration (µg/L)

Level (µg/L)

0.932

4.66

⁽¹⁾ Maximum concentration present in a laboratory method blank affecting all samples.

TO: WALKER, G. – PAGE 2

**DATE:** July 13, 2007

An action level of five times the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results less than the blank action level reported for the above analyte were qualified "U" as a result of laboratory blank contamination. Lead was qualified due to laboratory blank contamination.

#### Notes

The laboratory received sample PEN21GW4601 (as identified on the chain-of-custody) labeled as sample PEN21GW46R01. The Tetra Tech NUS, Inc. sampler (Jason Bourgeois) was contacted and confirmed that the sample ID on the bottle label was to be used. The laboratory used the sample ID on the bottle label (PEN21GW46R01) and that ID is also presented in the database.

#### **Executive Summary**

Laboratory Performance: Lead was qualified due to laboratory blank contamination.

# Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Data Review", October 2004, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the DoD QSM and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Matthew D. Kraus
Environmental Chemist

Tetra Tech MVS Joseph A. Samchuck Quality Assurance Officer

#### Attachments:

1. Appendix A - Qualified Analytical Results

2. Appendix B - Results as reported by the Laboratory

3. Appendix C – Support Documentation

APPENDIX A QUALIFIED ANALYTICAL RESULTS

# **Data Validation Qualifier Codes:**

= Lab Blank Contamination

= Field Blank Contamination

= Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)

= GC/MS Tuning Noncompliance

= MS/MSD Recovery Noncompliance D

= LCS/LCSD Recovery Noncompliance Ε

Lab Duplicate Imprecision

G = Field Duplicate Imprecision

Holding Time Exceedance

= ICP Serial Dilution Noncompliance

GFAA PDS - GFAA MSA's r < 0.995

ICP Interference - includes ICS % R Noncompliance K

Instrument Calibration Range Exceedance L

Sample Preservation Noncompliance

 Internal Standard Noncompliance N

N01 = Internal Standard Recovery Noncompliance Dioxins

N02 = Recovery Standard Noncompliance Dioxins

N03 = Clean-up Standard Noncompliance Dioxins

= Poor Instrument Performance (e.g. base-line drifting) P

= Uncertainty near detection limit (<2 x IDL for inorganics and <CRQL for organics)

= Other problems (can encompass a number of issues; e.g. chromatography, interferences, etc.) Q R

= Surrogates Recovery Noncompliance

S = Pesticide/PCB Resolution

= % Breakdown Noncompliance for DDT and Endrin

= % Difference between columns/detectors >25% for positive results determined via GC/HPLC

= Non-linear calibrations; correlation coefficient r < 0.995

W = EMPC result

= Signal to noise response drop

= Percent solids <30%</p>

Uncertainty at 2 sigma deviation is greater than sample activity

**PROJ_NO:** 00583 SDG: CTO056-6 MEDIA: WATER DATA FRACTION: M

	0	7-13-07			-
nsample	PEN21GW31FØ1	dd, nsample	PEN21GW46R01	nsample	PEN21GW5401
samp_date	5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
lab_id	SA2239-007	lab_id	SA2239-011	h_dal	SA2239-005
dc_type	ΣZ	qc_type	MN	qc_type	WZ
nnits	UG/L	nnits	UG/L	units	ng/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP_OF:		DUP_OF:		DUP_OF:	

	Parameter	AD
1	Qual	LE
	Val	
	Result	14.2
	Parameter	LEAD
	Qual Code	Σ
	Val Qual	٦
	Result	5.7
	Parameter	

Parameter	Result	Val Qual	Qual
LEAD	1.8	⊃	∢

PROJ_NO: 00583

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: M

PEN21GW7501	5/10/2007	SA2239-009	WN	UG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
PEN21GW7401	5/10/2007	SA2239-008	ΣZ	UG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
PEN21GW7301	5/10/2007	SA2239-010	ΝZ	NG/L	0.0	
nsample	samp_date	lab_id	dc_type	units	Pct_Solids	DUP_OF:

Parameter	LEAD
Qual	
Val Qual	-
Result	31.4
Parameter	LEAD
Qual	
Val Qual	
Result	63.7

Parameter

Result Qual	8.5
Parameter	LEAD
Qual	
Val Qual	-
lesult	31.4

# 00583 PROJ_NO:

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: M

PEN21GW7601 5/10/2007 SA2239-006 samp_date nsample

NM UG/L

qc_type lab_id

units

0.0

Pct_Solids DUP_OF:

Qual	
 Val Qual	
Result	27.1
Parameter	

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

# INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW31R01

Matrix: WATER

SDG Name:

CTO056-6

Percent Solids: 0.00

Lab Sample ID: SA2239-007

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	5.7			Р	1	5.0	0.91

Bottle ID: A

# INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW46R01

Matrix: WATER

SDG Name:

CTO056-6

Percent Solids: 0.00

Lab Sample ID: SA2239-011

Concentration Units: ug/L

CAS No.	Analyte	 Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	14.2			P	1	5.0	0.91

Bottle ID: D

# INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW5401

Matrix: WATER

SDG Name:

CTO056-6

Percent Solids: 0.00

Lab Sample ID: SA2239-005

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF Adj	justed PQL Ac	djusted IDL
7439-92-1	LEAD, TOTAL	1.8	I		P	1	5.0	0.91

Bottle ID: A

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW7301

Matrix: WATER

SDG Name:

CTO056-6

Percent Solids: 0.00

Lab Sample ID: SA2239-010

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	63.7			P	1	5.0	0.91

Bottle ID: D

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW7401

Matrix: WATER

SDG Name:

CTO056-6

Percent Solids: 0.00

Lab Sample ID: SA2239-008

Concentration Units: ug/L

CAS No.	Analyte	Concentration C	Q	M		ljusted PQL Adjusted ID	
7439-92-1	LEAD, TOTAL	31.4		P	1	5.0 0.9	

Bottle ID: D

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW7501

Matrix: WATER

SDG Name:

CTO056-6

Percent Solids: 0.00

Lab Sample ID: SA2239-009

Concentration Units: ug/L

CAS No.	Analyte	Concen	tration C	Q	M	DF A	djusted PQL A	
7439-92-1	LEAD, TOTA	AL	8.5		P	1	5.0	0.91

Bottle ID: D

# INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW7601

Matrix: WATER

SDG Name:

CTO056-6

Percent Solids: 0.00

Lab Sample ID: SA2239-006

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	27.1			P	1	5.0	0.91

Bottle ID: D



# INTERNAL CORRESPONDENCE

TO:

MR. G. WALKER

DATE:

**JULY 20, 2007** 

FROM:

**EDWARD SEDLMYER** 

**COPIES:** 

**DV FILE** 

SUBJECT:

ORGANIC DATA VALIDATION- VOA/PAH/TPH

CTO 0056, NAS PENSACOLA

**SDG CTO056-6** 

SAMPLES:

10/Aqueous

PEN21GW3802

PEN21GW3802D

PEN21GW46R01

PEN21GW5101 PEN21GW7401 PEN21GW5202 PEN21GW7501 PEN21GW7301 PEN21GW7601

TB051007

#### **OVERVIEW**

The sample set for CTO 0056, NAS Pensacola, SDG CTO056-6 consists of one (1) trip blank and nine (9) aqueous environmental samples. The following field duplicate pair was associated with this SDG: PEN21GW3802 / PEN21GW3802D. All samples were analyzed for BTEX volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and total petroleum hydrocarbon (TPH). The trip blank was analyzed for VOCs only.

The samples were collected by TetraTech NUS on May 10, 2007 and analyzed by Katahdin Analytical Services, Inc. All analyses were conducted in accordance with SW-846 Methods 8260B, 8270SIM, and FDEP FL-PRO (TPH) analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
  - Holding times
    - Initial/continuing calibrations
- Laboratory method blank results
  - Field Duplicate Results
- Detection Limits

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

#### Volatiles

The field duplicate precision exceeded the 30% relative percent difference (RPD) quality control limit for ethylbenzene in the field duplicate pair PEN21GW3802 / PEN21GW3802D. The positive results for ethylbenzene in the duplicate samples PEN21GW3802 / PEN21GW3802D were qualified as estimated (J).

Sample PEN21GW7301 required a 5X dilution for ethylbenzene because of a concentrations greater than the linear calibration range of the instrument. The ethylbenzene result for sample PEN21GW7301 was reported from the diluted analysis. All other results were reported from the undiluted analysis.

#### **PAHs**

Samples PEN21GW3802, PEN21GW3802D, PEN21GW5202, PEN21GW7301, PEN21GW7401, PEN21GW7501, and PEN21GW7601 required dilutions for naphthalene, 1-methylnaphthalene, and/or 2-methylnaphthalene because of concentrations greater than the linear calibration range of the instrument. The naphthalene, 1-methylnaphthalene, and/or 2-methylnaphthalene results were reported from the diluted analyses. All other results are reported from the undiluted analysis.

The continuing calibration analyzed on 05/22/07 @10:38 had percent differences greater than 25% for 2-methylnaphthalene and benzo(a)anthracene. The positive results for samples PEN21GW7601, PEN21GW3802, and PEN21GW5202 were qualified as estimated, J.

#### TPH

No qualification of the data was necessary.

#### **Additional Comments:**

Positive results less than the reporting limit (RL) were qualified as estimated "J", due to uncertainty near the detection limit.

#### **EXECUTIVE SUMMARY**

Laboratory Performance Issues: Several minor continuing calibration noncompliances were noted for the PAH fraction.

Other Factors Affecting Data Quality: Field duplicate imprecision resulted in the qualification of one VOC compound in the field duplicate pair.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the DoD QSM for Environmental Laboratories.

Tetra Tech NUS

Edward Sedlmyer Chemist/Data Validator

Tetratech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

#### Attachments:

Appendix A - Qualified Analytical Results

Appendix B – Results as Reported by the Laboratory

Appendix C – Support Documentation

00583 PROJ_NO:

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: OV

nsample	PEN21GW3802	nsample	PENZ1GW3802D	nsample	PEN21GW46R01RA
samp_date	5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
lab_id	SA2239-3	lab_id	SA2239-4	lab_id	SA2239-11RA
qc_type	ΣZ	qc_type	- NM	qc_type	NΩ
units	UG/L	nnits	UG/L	units	NG/L
Pct_Solids	0.0	Pct_Solids	0.0	. Pct_Solids	0.0
DUP_OF:		DUP_OF:	PEN21GW3802	DUP_OF:	

Parameter	Val Result Qual		Qual	Parameter	Result	Result Qual Code	Qual	Parameter	Result	Val
BENZENE	0.5	ח		BENZENE	0.5	Э		BENZENE	0.5	>
ETHYLBENZENE	2	٦	ŋ	ETHYLBENZENE	4	7	ŋ	ETHYLBENZENE	0.3	כ
M+P-XYLENES	17			M+P-XYLENES	23			M+P-XYLENES	-	ר
O-XYLENE	2			O-XYLENE	0			O-XYLENE	0.4	ח
TOLUENE	0.4	ם		TOLUENE	0.4	_		TOLUENE	0.4	ח
TOTAL XYLENES	19			TOTAL XYLENES	25			TOTAL XYLENES	-	ם

Qual

		Page 1 of 4 [7/20/2007 1:17:01 PM]

PROJ_NO: 00583 SDG: CT0056-6 MEDIA: WATER DATA FRACTION: OV

nsample samp date	PEN21GW5101 5/10/2007			nsample samp date	PEN21GW5202 5/10/2007	202		nsample samp date	PEN21GW7301 5/10/2007	301	
lab_id	SA2239-2			lab_id	SA2239-1			lab_id	SA2239-10		
qc_type	NN			qc_type	ΝN			qc_type	NZ.		
units	UG/L			units	UG/L			units	NG/L		
Pct_Solids	0.0			Pct_Solids	0.0			Pct_Solids	0.0		
DUP_OF:				DUP_OF:				DUP_OF:			
		Val	Qual			Val	Qual			Val	Qual
Parameter	Result Qual		Code	Parameter	Res	Result Qual		Parameter	Resi	Result Qual	
BENZENE	0.5			BENZENE		0.5 U		BENZENE	0	0.5 U	
ETHYLBENZENE	0.3			ETHYLBENZENE	_	0.3		M+P-XYLENES		41	
M+P-XYLENES	-	n		M+P-XYLENES		<u>٦</u>		O-XYLENE		-	
O-XYLENE	0.4	n		O-XYLENE		0.4 U		TOLUENE		က	
TOLUENE	0.4	ם		TOLUENE		0.4 U		TOTAL XYLENES		52	
TOTAL XYLENES	-	ם		TOTAL XYLENES		٦ ٦					

PROJ_NO: 00583

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: OV

PEN21GW7301DL	nsample	PEN21GW7401	nsample	PEN21GW7501
5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
SA2239-10DL	lab_id	SA2239-8	lab_id	SA2239-9
NN	qc_type	MN	qc_type	ΣZ
NG/L	units	NG/L	units	UG/L
0.0	Pct_Solids	0.0	Pct_Solids	0.0
	DUP_OF:		DUP_OF:	

BENZENE		350	ETHYLBENZENE
Parameter	Qual	Val Result Qual	Parameter

Parameter	Val Result Qual	Val Qual	Qual	Parameter	Result	Val Qual	Qual
BENZENE	0.5	n		BENZENE	0.5	n	
ETHYLBENZENE	120			ETHYLBENZENE	9		
M+P-XYLENES	190			M+P-XYLENES	10		
O-XYLENE	0.4	_		O-XYLENE	4.0	ח	-
TOLUENE	9			TOLUENE	0.4	ם	
TOTAL XYLENES	190			TOTAL XYLENES	10		
יכוטראוררוארס	2			וסואראודות		2	2

PROJ_NO: 00583

SDG: CT0056-6 MEDIA: WATER DATA FRACTION: OV

nsample	PEN21GW7601	nsample	TB051007
samp_date	5/10/2007	samp_date	4/25/2007
lab_id	SA2239-6	lab_id	SA2239-12
dc_type	ΣZ	qc_type	ΣZ
nnits	NG/L	units	NG/L
Pct_Solids	0.0	Pct_Solids	0.0
DUP_OF:		DUP OF:	

Parameter	Val Result Qual		Qual Code	Parameter	Val Result Qual	Val Qual	Qual Code
BENZENE	0.5	n		BENZENE	. 0.5	D	
THYLBENZENE	45			ETHYLBENZENE	0.3	ס	
H-YYLENES	200			M+P-XYLENES	-	ם	
-XYLENE	6			O-XYLENE	0.4	ס	
OLUENE	12			TOLUENE	0.4	ם	
OTAL XYLENES	200			TOTAL XYLENES	-	ם	

PROJ_NO: 00583

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: PAH

nsample	PEN21GW3802	nsample	PEN21GW3802D	nsample	PEN21GW3802DDL
samp_date	5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
lab_id	SA2239-3	lab_id	SA2239-4	lab_id	SA2239-4DL
qc_type	ZZ	qc_type	VZ	qc_type	ΣZ
units	NG/L	units	UG/L	units	UG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP_OF:		DUP_OF:	PEN21GW3802	DUP_OF:	PEN21GW3802

	TOTAL CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRA			
ual	Parameter	Result	Val Qual	Qual Code
	1-METHYLNAPHTHALENE	28		
	2-METHYLNAPHTHALENE	66	<u>ں</u>	ပ
	NAPHTHALENE	32		

		Val	Qual			Val	Qual	
Parameter	Result	Qual	Code	Parameter	Result	Qual	Code	
ACENAPHTHENE	1			ACENAPHTHENE	-			1-METHYLNAPH
ACENAPHTHYLENE	90.0	n		ACENAPHTHYLENE	90.0	⊃		2-METHYLNAPH
ANTHRACENE	90.0	n		ANTHRACENE	90:0	⊃		NAPHTHALENE
BENZO(A)ANTHRACENE	0.07	n		BENZO(A)ANTHRACENE	0.07	⊃		
BENZO(A)PYRENE	0.05	Ω		BENZO(A)PYRENE	0.05	n		
BENZO(B)FLUORANTHENE	0.08	n		BENZO(B)FLUORANTHENE	0.08	⊃		
BENZO(G,H,I)PERYLENE	0.09	n		BENZO(G,H,I)PERYLENE	0.09	⊃		
BENZO(K)FLUORANTHENE	0.1	n		BENZO(K)FLUORANTHENE	0.1	_		
CHRYSENE	0.07	Π		CHRYSENE	0.07	⊃		
DIBENZO(A,H)ANTHRACENE	0.1	n		DIBENZO(A,H)ANTHRACENE	0.1	⊃		
FLUORANTHENE	90.0	n		FLUORANTHENE	90.0	⊃		
FLUORENE	0.09	ſ	d.	FLUORENE	9.0			
INDENO(1,2,3-CD)PYRENE	0.1	Π		INDENO(1,2,3-CD)PYRENE	0.1	⊃		
PHENANTHRENE	0.05	n		PHENANTHRENE	0.05	ח		
PYRENE	90.0	n		PYRENE	90:0	כ		

PROJ_NO: 00583

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: PAH

•					
nsample	PEN21GW3802DL	nsample	PEN21GW46R01	nsample	PEN21GW5101
samp_date	5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
lab_id	SA2239-3DL	lab_id	SA2239-11	lab_id	SA2239-2
qc_type	ΣZ	qc_type	ΣZ	qc_type	≥Z
units	UG/L	units	NG/L	nnits	NG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP OF:		DUP OF:		DUP OF:	

Parameter	Result	Val Qual	Qual	
1-METHYLNAPHTHALENE	62			1-MET
2-METHYLNAPHTHALENE	100	ſ	ပ	2-MET
NAPHTHALENE	31			ACEN/

Oual Code

Val Qual

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_	#	-	-	77	9	9	2	25	98	8	0.1	20	0.1	9	2	6	0.5	35	<u></u>
	Result			0.07	90.0	90.0	0.07	0.05	0.08	0.08	0	0.07	0	90.0	0.07	0.09	0	0.05	0.06
	Parameter	1-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	ACENAPHTHENE	ACENAPHTHYLENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	CHRYSENE	DIBENZO(A,H)ANTHRACENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PHENANTHRENE	PYRENE
Qual	Code		Д												Ф			Ь	
Val	Qual		ſ		⊃	n	o O	Π	n	_	n	ב	n	⊃	_	n		٦	Π
	Result	0.4	0.2	0.4	90.0	90.0	0.07	0.05	0.08	0.09	0.1	0.07	0.1	90.0	0.1	0.1	0.4	0.00	90.0
	Parameter	1-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	ACENAPHTHENE	ACENAPHTHYLENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	CHRYSENE	DIBENZO(A,H)ANTHRACENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PHENANTHRENE	PYRENE
暿	ge																		

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PROJ_NO: 00583

SDG: CT0056-6 MEDIA: WATER DATA FRACTION: PAH

PEN21GW7301	5/10/2007	SA2239-10	NΑ	UG/L	0.0	
						UP_OF:
					9.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
					1	
						DUP_OF:
	PEN21GW5202 nsample PEN21GW5202DL nsample	PEN21GW5202 nsample remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable re	PEN21GW5202         nsample         PEN21GW5202DL         nsample           5/10/2007         samp_date         5/10/2007         samp_date           SA2239-1         lab_id         SA2239-1DL         lab_id	PEN21GW5202         nsample         PEN21GW5202DL         nsample           5/10/2007         samp_date         5/10/2007         samp_date           5/10/2007         samp_date         lab_id         lab_id         lab_id           NM         qc_type         NM         qc_type	PEN21GW5202         nsample         PEN21GW5202DL         nsample           5/10/2007         samp_date         5/10/2007         samp_date           5/10/2007         samp_date         samp_date         lab_id         lab_id           NM         qc_type         NM         qc_type           UG/L         units         UG/L         units	nsample         PEN21GW5202         nsample         PEN21GW5202DL         nsample         PEN21GW7301           samp_date         5/10/2007         samp_date         5/10/2007         samp_date         5/10/2007           lab_id         SA2239-1         lab_id         SA2239-10L         lab_id         SA2239-10           qc_type         NM         qc_type         NM         mits         UG/L         units         UG/L           units         0.0         Pct_Solids         0.0         Pct_Solids         0.0         0.0

Qual			Val	Qual	
Code	Parameter	Result	Qual	Code	
	1-METHYLNAPHTHALENE	130			1-METHY
	2-METHYLNAPHTHALENE	140	ſ	ပ	ACENAP
	NAPHTHALENE	140			ACENAPI

Val Result Qual

Parameter

90.0

lal			Val	Qual
ode	Parameter	Result	Qual	Code
	1-METHYLNAPHTHALENE	4		
ပ	ACENAPHTHENE	0.1	7	۵
	ACENAPHTHYLENE	90.0	D	
	ANTHRACENE	90.0	D	
	BENZO(A)ANTHRACENE	0.07	D	
	BENZO(A)PYRENE	0.05	·D	
	BENZO(B)FLUORANTHENE	0.08	ס	
	BENZO(G,H,I)PERYLENE	0.09	D	
	BENZO(K)FLUORANTHENE	0.1	n	
	CHRYSENE	0.07	n	
	DIBENZO(A,H)ANTHRACENE	0.1	n	
	FLUORANTHENE	0.08	ſ	Ь
	FLUORENE	0.07	n	
	INDENO(1,2,3-CD)PYRENE	0.1	ם	
	PHENANTHRENE	0.05	n	
	PYRENE	0.09	٦	Ь

**D** 

0.05

BENZO(B)FLUORANTHENE

BENZO(A)PYRENE

BENZO(A)ANTHRACENE

**ACENAPHTHYLENE** 

ANTHRACENE

ACENAPHTHENE

BENZO(G,H,I)PERYLENE

0.09

0.07

⊃

DIBENZO(A,H)ANTHRACENE

FLUORANTHENE

FLUORENE

BENZO(K)FLUORANTHENE

CHRYSENE

90.0

0.05

0.7

NDENO(1,2,3-CD)PYRENE

PHENANTHRENE

PYRENE

# PROJ_NO: 00583

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: PAH

nsample	samp_date	lab_id	qc_type	nnits	Pct_Solids	A GILO
PEN21GW7401	5/10/2007	SA2239-8	ΣN	UG/L	0.0	
nsample	samp_date	lab_id	dc_type	units	Pct_Solids	OF OF
PEN21GW7301DL	5/10/2007	SA2239-10DL	ΣN	, UG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP OF:

PEN21GW7401DL 5/10/2007 SA2239-8DL NM UG/L 0.0

	1-METHYLN	2-METHYLN/	
Qual Code			
Val Result Qual			
Result	9	35	
Parameter	2-METHYLNAPHTHALENE	NAPHTHALENE	

			Val	Qual	
	Parameter	Result	Qual	Code	
T	1-METHYLNAPHTHALENE	က			
	2-METHYLNAPHTHALENE	4			
	ACENAPHTHENE	0.07	n		
	ACENAPHTHYLENE	90.0	n		
	ANTHRACENE	90.0	n		
	BENZO(A)ANTHRACENE	0.07	n		
	BENZO(A)PYRENE	0.05	Π		
	BENZO(B)FLUORANTHENE	0.08	n		
	BENZO(G,H,I)PERYLENE	0.08	Π		
	BENZO(K)FLUORANTHENE	0.1	n		
	CHRYSENE	0.07	n		
	DIBENZO(A,H)ANTHRACENE	0.1	Π		
	FLUORANTHENE	0.1	ſ	Ь	
	FLUORENE	0.07	n		
	INDENO(1,2,3-CD)PYRENE	60'0	n		
	PHENANTHRENE	0.1	. [	Ь	
	PYRENE	0.1	ſ	Ь	

Parameter	Result	Val	Qual Code
NAPHTHALENE	10		

PROJ_NO: 00583

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: PAH

nsample	samp_date	lab_id	qc_type	nnits	Pct_Solids	DUP OF:
PEN21GW7501DL	5/10/2007	SA2239-9DL	ΣZ	NG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP OF:
PEN21GW7501	5/10/2007	SA2239-9	ΣZ	NG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP OF:

PEN21GW7601 5/10/2007 SA2239-6

NM UG/L

NAPHTHALENE

Val Qual

Parameter

1-METHYLNAPHTHALENE 2-METHYLNAPHTHALENE ه الم

0.7

BENZO(B)FLUORANTHENE

**SENZO(A)ANTHRACENE** 

BENZO(A)PYRENE

**ACENAPHTHYLENE** 

ANTHRACENE

ACENAPHTHENE

BENZO(G,H,I)PERYLENE

BENZO(K)FLUORANTHENE

CHRYSENE

0.06

_ | _

0.2

₾

0.07

0.06

0.1

DIBENZO(A,H)ANTHRACENE

FLUORANTHENE

FLUORENE

INDENO(1,2,3-CD)PYRENE

PHENANTHRENE

PYRENE

0.05

		۷aا	Qual
 Parameter	Result	Qual	Code
 1-METHYLNAPHTHALENE	2		
2-METHYLNAPHTHALENE	ဇ		
ACENAPHTHENE	0.07	n	
ACENAPHTHYLENE	90.0	n	,
ANTHRACENE	90.0	n	
BENZO(A)ANTHRACENE	0.07	n	
BENZO(A)PYRENE	0.05	n	
BENZO(B)FLUORANTHENE	0.08	n	
BENZO(G,H,I)PERYLENE	0.08	n	
BENZO(K)FLUORANTHENE	0.1	n	·
CHRYSENE	0.07	n	
DIBENZO(A,H)ANTHRACENE	0.1	n	
FLUORANTHENE	90.0	U	
FLUORENE	0.07	n	
INDENO(1,2,3-CD)PYRENE	60.0	n	
PHENANTHRENE	0.05	n	
PYRENE	0.06	U	

## 00583 PROJ_NO:

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: PAH

PEN21GW7601DL 5/10/2007 SA2239-6DL NM UG/L 0.0 samp_date nsample qc_type lab_id units

Pct_Solids DUP_OF: Qual Val Result Qual 0 Parameter NAPHTHALENE

PROJ_NO: 00583

SDG: CT0056-6 MEDIA: WATER DATA FRACTION: PET

nsample	PEN21GW3802DDL	nsample	PEN21GW3802DL	nsample	PEN21GW46R01
samp_date	5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
lab_id	SA2239-4DL	lab_id	SA2239-3DL	lab_id	SA2239-11
qc_type .	NM	qc_type	ΝM	qc_type	ZZ
units	UG/L	units	NG/L	units	UG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP OF:	PEN21GW3802	DUP OF:		DUP OF	

DUP_OF:	PENZ1GW380Z		טקיסים:				
Parameter	Lab Result Qual	Lab Val Qual Qual Qual Code	Parameter	Result Qual Qual	Lab Qual	Val Qual	Qual
TPH (C08-C40)	16000		TPH (C08-C40)	18000			

Parameter	Result	Lab Qual	Val Qual	Val Qual Qual Code
TPH (C08-C40)	2100			

PROJ_NO: 00583

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: PET

nsample	PEN21GW5101RA2	nsample	PEN21GW5202RA	nsample	PEN21GW7301RA
samp_date	5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
lab_id	SA2239-2RA2	lab_id	SA2239-1RA	lab_id	SA2239-10RA
qc_type	ΣZ	qc_type	NM	qc_type	ZZ
units	UG/L	units	NG/L	units	UG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP_OF:		DUP_OF:		DUP_OF:	

	7/50				on siling	7/50				21112
Pct_Solids 0.	0.0				Pct_Solids 0.0	. 0				Pct_Solid
DUP_OF:					DUP_OF:					DUP_OF:
		Lab Val Qual	Val	Qual			Lab	Lab Val Qual	Qual	
Parameter	Result	Result Qual Qual Code	Qual	Code	Parameter	Result Qual Code	Qual	Qual	Code	
TPH (C08-C40)	290	_	-	В	TPH (C08-C40)	3100				TPH (C08-C

e a	Parameter	Result	Lab Qual	Val Qual Qual Code	Qual
	TPH (C08-C40)	2300			

00583 PROJ_NO:

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: PET

nsample	PEN21GW7401	nsample	PEN21GW7501RA	nsample	PEN21GW7601
samp_date	5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
lab_id	SA2239-8	lab_id	SA2239-9RA	lab_id	SA2239-6
qc_type	NA	qc_type	MN	qc_type	ΣZ
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP OF:		DUP OF:		DUP OF:	

Result Qual Qual Code	o Val ₃i Qual	Qual	Parameter	Result (	Lab	Val Qual	Sode	Parameter	Result	Lab	Val Qual
2300			TPH (C08-C40)	1400				TPH (C08-C40)	3700		

Parameter

TPH (C08-C40)

#### **APPENDIX A**

**QUALIFIED ANALYTICAL RESULTS** 

#### **Data Validation Qualifier Codes:**

A = Lab Blank Contamination

B = Field Blank Contamination

C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)

C01 = GC/MS Tuning Noncompliance

D = MS/MSD Recovery Noncompliance

E = LCS/LCSD Recovery Noncompliance

F = Lab Duplicate Imprecision

G = Field Duplicate Imprecision

H = Holding Time Exceedance

I = ICP Serial Dilution Noncompliance

J = GFAA PDS - GFAA MSA's r < 0.995 / ICP PDS Recovery Noncompliance

K = ICP Interference - includes ICS % R Noncompliance

L = Instrument Calibration Range Exceedance

M = Sample Preservation Noncompliance

N = Internal Standard Noncompliance

N01 = Internal Standard Recovery Noncompliance Dioxins

N02 = Recovery Standard Noncompliance Dioxins

N03 = Clean-up Standard Noncompliance Dioxins

O = Poor Instrument Performance (e.g. base-line drifting)

P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)

Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)

R = Surrogates Recovery Noncompliance

S = Pesticide/PCB Resolution

T = % Breakdown Noncompliance for DDT and Endrin

U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC

V = Non-linear calibrations; correlation coefficient r < 0.995

W = EMPC result

X = Signal to noise response drop

Y = Percent solids <30%

Z = Uncertainty at 2 sigma deviation is greater than sample activity

#### APPENDIX B

**RESULTS AS REPORTED BY THE LABORATORY** 

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 22-MAY-2007 14:02

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-3

Client ID: PEN21GW3802

SDG: CT0056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39161

CAS#	Compound	Flags	Results	DF	PQL	Adi.POI	Adj.MDL
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
100-41-4	Ethylbenzene		2	1.0	1	1	0.3
1330-20-7	Xylenes (total)		19	1.0	3	3	1
	m+p-Xylenes		17	1.0	2	2	
95-47-6	o-Xylene		2	1.0	1	1	1.0
1868-53-7	Dibromofluoromethane		112%	2.0		*	0.4
17060-07-0	1,2-Dichloroethane-D4		113%				
2037-26-5	Toluene-D8		97%				
460-00-4	P-Bromofluorobenzene		· 1098				
			1034				
	Page	01 of 01	T5997.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 15:22

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-4

Client ID: PEN21GW3802D

SDG: CT0056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39217

Units: ug/l

CAS#	Compound	Flags	Results	DF	POL	Adi. Pot	Adj.MDL
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
100-41-4	Ethylbenzene		4	1.0	1	1	0.3
1330-20-7	Xylenes (total)		25	1.0	3	3	1
	m+p-Xylenes		-23	1.0	2	2	1.0
95-47-6	o-Xylene	,	2	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		92%		-	_	0.4
17060-07-0	1,2-Dichloroethane-D4		93%				
2037-26-5	Toluene-D8		91%				
460-00-4	P-Bromofluorobenzene		97%				
	Page	01 of 01	T6032.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 24-MAY-2007 14:13

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-11RA Client ID: PEN21GW46R01

SDG: CT0056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39272

Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adi.Pol	Adj.MDL
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
	m+p-Xylenes	ט	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	ប	0.4	1.0	1	1	0.4
1330-20-7	Xylenes (total)	σ	1	1.0	3	3	1
1868-53-7	Dibromofluoromethane		86%				_
17060-07-0	1,2-Dichloroethane-D4		83%				
2037-26-5	Toluene-D8		86%				
460-00-4	P-Bromofluorobenzene		91%				

Page 01 of 01 S4675.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 14:50

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-2

Client ID: PEN21GW5101

SDG: CT0056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39217

Units: ug/l

T6031.D

CAS#	Compound	Flags	Results	DF	PQL	Adj.POL	Adj.MDL
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
108-88-3	Toluene	ប	0.4	1.0	1	1	0.4
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
1330-20-7	Xylenes (total)	σ	1	1.0	3	3 ·	1
	m+p-Xylenes	ប	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	σ	0.4	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		93%			_	
17060-07-0	1,2-Dichloroethane-D4		96%				
2037-26-5	Toluene-D8		90%				
460-00-4	P-Bromofluorobenzene		94%				

01 of 01

Page

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 14:18

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-1

Client ID: PEN21GW5202

SDG: CT0056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39217

·Units: ug/l

T6030.D

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
71-43-2	Benzene	ប	0.5	1.0	1	1	0.5
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
100-41-4	Ethylbenzene .	σ	0.3	1.0	1	1	0.3
1330-20-7	Xylenes (total)	υ	1	1.0	3	3	1
	m+p-Xylenes	σ	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	σ	0.4	1.0	1.	1	0.4
1868-53-7	Dibromofluoromethane		96%				
17060-07-0	1,2-Dichloroethane-D4		104%				
2037-26-5	Toluene-D8		93%				
460-00-4	P-Bromofluorobenzene		1028				

01 of 01

Page

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 15:35

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-10 Client ID: PEN21GW7301

SDG: CT0056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39218

Units: ug/l

S4657.D

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL	
108-88-3	Toluene	•	3	1.0	1	1	0.4	
71-43-2	Benzene	σ.	0.5	1.0	1	1	0.5	
100-41-4	Ethylbenzene	L	. 350	1.0	1	1	0.3	
	m+p-Xylenes		41	1.0	2	2	1.0	
95-47-6	o-Xylene		11	1.0	1.	<u>1</u>	0.4	
1330-20-7	Xylenes (total)		. 52	1.0	3	3	1	
1868-53-7	Dibromofluoromethane		89%					
17060-07-0	1,2-Dichloroethane-D4		87%					
2037-26-5	Toluene-D8		. 90%					
460-00-4	P-Bromofluorobenzene		948					

01 of 01

Page

Client: Tetra Tech NUS, Inc

Project: CTO 056 NAs Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07

Extraction Date:

Analysis Date: 24-MAY-2007 14:44

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-10DL Client ID: PEN21GW7301

SDG: CTO056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39272

Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adi.MDI
108-88-3	Toluene	I	2	5.0	1	5	2
71-43-2	Benzene	σ	2	5.0	1	5	2
100-41-4	Ethylbenzene		350	5.0	1	5	2
	m+p-Xylenes		33	5.0	2	10	5
95-47-6	o-%ylene		8	5.0	1	5	2
1330-20-7	Xylenes (total)		41	5.0	3	15	6
1868-53-7	Dibromofluoromethane		87%		-		· ·
17060-07-0	1,2-Dichloroethane-D4	•	85%				
2037-26-5	Toluene-D8		87%				
460-00-4	P-Bromofluorobenzene		90%				

Page 01 of 01 S4676.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 16:27

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-8

Client ID: PEN21GW7401

SDG: CTO056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39217

Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adi. POL	Adj.MDL
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
108-88-3	Toluene		6	1.0	1	1	0.4
100-41-4	Ethylbenzene		120	1.0	1	1	0.3
1330-20-7	Xylenes (total)		190	1.0	3	3	1
	m+p-Xylenes		190	1.0	2	2	1.0
95-47-6	o-Xylene	ਹ	0.4	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		888				0.1
17060-07-0	1,2-Dichloroethane-D4		888				
2037-26-5	Toluene-D8		92%				
460-00-4	P-Bromofluorobenzene		948				

Page 01 of 01 T6034.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 16:59

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-9

Client ID: PEN21GW7501

SDG: CTO056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39217

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL	
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5	
108-88-3	Toluene	υ	0.4	1.0	1	1	0.4	
100-41-4	Ethylbenzene		6	1.0	1	1	0.3	
1330-20-7	Xylenes (total)		10	1.0	3	3	1	
	m+p-Xylenes		10	1.0	2	2	1.0	
95-47-6	o-Xylene	σ	0.4	1.0	1	1	0.4	
1868-53-7	Dibromofluoromethane		888		-	4-	0.4	
17060-07-0	1,2-Dichloroethane-D4		87%					
2037-26-5	Toluene-D8		93%					
460-00-4	P-Bromofluorobenzene		97%					
	z zzowez roz opciizene		976					

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 15:54

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-6

Client ID: PEN21GW7601

SDG: CTO056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39217

CAS#	Compound	Flags	Results	DF	PQL	Adi. POT	Adj.MDL
71-43-2	Benzene	ד	0.5	1.0	1	1	0.5
108-88-3	Toluene		12	1.0	1	1	0.5
100-41-4	Ethylbenzene		45	1.0	1	1	0.3
1330-20-7	Xylenes (total)		200	1.0	3	3	1
	m+p-Xylenes		200	1.0	. 2	2	1.0
95-47-6	o-Xylene		9	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		91%			_	
17060-07-0	1,2-Dichloroethane-D4		90%				
2037-26-5	Toluene-D8		92%				
460-00-4	P-Bromofluorobenzene		95%				
	Page	01 of 01	T6033.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 04/25/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 09:29

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-12 Client ID: TB051007

SDG: CTO056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39217

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
1330-20-7	Xylenes (total)	σ	1	1.0	3	3	1
	m+p-Xylenes	ប	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	σ	0.4	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		94%	4.0	-	7	0.4
17060-07-0	1,2-Dichloroethane-D4	•	96%				
2037-26-5	Toluene-D8		89%				
460-00-4	P-Bromofluorobenzene		93%				
			25.6				
	Page	01 of 01	T6021.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 18-MAY-2007 19:46

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-3 Client ID: PEN21GW3802

SDG: CT0056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi POI	Adj.MDL
91-20-3	Naphthalene	L	21	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	JL	62	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	L	39	1.0	0.2	0.2	0.07
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		1.0	1.0	0.2	0.2	0.08
86-73-7	Fluorene	I	0.09	1.0	0.2	0.2	
85-01-8	Phenanthrene	. 0	0.05	1.0	0.2	0.2	0.07 0.05
120-12-7	Anthracene	П	0.06	1.0	0.2	0.2	
206-44-0	Fluoranthene	υ υ	0.06	1.0	0.2		0.06
129-00-0	Pyrene	υ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	. U	0.07	1.0	0.2	0.2	0.06
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	บ	0.08	1.0		0.2	0.07
207-08-9	Benzo(k)fluoranthene	. π	0.1		0.2	0.2	0.08
50-32-8	Benzo(a) pyrene	υ	0.05	1.0	0.2	0.2	0.1
193-39-5	Indeno(1,2,3-cd)pyrene	. 0		1.0	0.2	0.2	0.05
191-24-2	Benzo(g,h,i) perylene	. <del>U</del>	0.1	1.0	0.2	0.2	0.1
53-70-3	Dibenzo (a, h) anthracene	υ	0.09	1.0	0.2	0.2	0.09
7297-45-2	2-Methylnaphthalene-d10	U	0.1	1.0	0.2	0.2	0.1
81103-79-9	Fluorene-d10		71%				
1718-52-1	Pyrene-d10		J 48%		•		
. 1/10 32-1	ryrene-aro		50%				-

Page 01 of 01 U7983.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 16:04

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-3DL Client ID: PEN21GW3802

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	$\mathbf{DF}$	PQL	Adi.POI	Adj.MDL
91-20-3	Naphthalene		31	40	0.2	8	5
91-57-6	2-Methylnaphthalene	J	100	40	0.2	. 8	3
90-12-0	1-Methylnaphthalene		62	40	0.2	8	6
208-96-8	Acenaphthylene	σ	2	40	0.2	8	2
83-32-9	Acenaphthene	σ	3	40	0.2	8	3
86-73-7	Fluorene	σ	. 3	40	0.2	8	3
85-01-8	Phenanthrene	σ	2	40	0.2	8	2
120-12-7	Anthracene	σ	2	40	0.2	8	2
206-44-0	Fluoranthene	σ	2	40	0.2	8	2
129-00-0	Pyrene	σ	2	40	0.2	8	2
56-55-3	Benzo(a)anthracene	σ.	3	40	0.2	8	3
218-01-9	Chrysene	· σ	3	40	0.2	8	3
205-99-2	Benzo(b)fluoranthene	σ		40	0.2	8	3
207-08-9	Benzo(k)fluoranthene	.υ	. 4	40	0.2	8	4
50-32-8	Benzo(a)pyrene	σ	2	40	0.2	. 8	2
193-39-5	Indeno(1,2,3-cd)pyrene	σ	4	40	0.2	8	4
191-24-2	Benzo(g,h,i)perylene	υ	4	40	0.2	8	4
53-70-3	Dibenzo(a,h)anthracene	σ	5	40	0.2	8	5
7297-45-2	2-Methylnaphthalene-d10		D				
81103-79-9	Fluorene-d10		D				
1718-52-1	Pyrene-d10		D				
							•

Page 01 of 01 U8009.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 18-MAY-2007 20:35

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-4

Client ID: PEN21GW3802D

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene	L	22	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	JL	65	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	L	40	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	υ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		1.0	1.0	0.2	0.2	0.07
86-73-7	Fluorene		0.6	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	ΰ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	ΰ.	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b) fluoranthene	ד	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	σ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	σ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		72%				
81103-79-9	Fluorene-d10		J 53%				
1718-52-1	Pyrene-d10		50%				

Page 01 of 01 U7984.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 13:00

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-4DL Client ID: PEN21GW3802D

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi POI	Adj.MDL
91-20-3	Naphthalene	•	32	20	0.2	4	2
91-57-6	2-Methylnaphthalene	J	99	20	0.2	4	1
90-12-0	1-Methylnaphthalene		58	20	0.2	4	3
208-96-8	Acenaphthylene	σ	1	20	0.2	4	7
83-32-9	Acenaphthene	ΰ	1	20	0.2	4	1
86-73-7	Fluorene	υ σ	1	20	0.2	4	1
85-01-8	Phenanthrene	ט	1	20	0.2	4	1
120-12-7	Anthracene	σ	1	20	0.2	4	1
206-44-0	Fluoranthene	σ	1	20	0.2	4	1
129-00-0	Pyrene	ָ ט	1	20	0.2	4	1
56-55 <b>-</b> 3	Benzo (a) anthracene	ΰ	1	20	0.2	4	1
218-01-9	Chrysene	σ.	1	20	0.2	4	1
205-99-2	Benzo(b)fluoranthene	σ	2	20	0.2	4	2
207-08-9	Benzo(k)fluoranthene	ਧ਼	2	20	0.2	4	2
50-32 <b>-</b> 8	Benzo(a)pyrene	, <del>u</del>	ı	20	0.2	4	1
193-39-5	Indeno (1,2,3-cd) pyrene	σ	2	20	0.2	4	2
191-24-2	Benzo(g,h,i)perylene	σ	2	20	0.2	4	2
53-70-3	Dibenzo(a,h)anthracene	σ	2	20	0.2	4	2
7297-45-2	2-Methylnaphthalene-d10		D				
81103-79-9	Fluorene-d10		D				•
1718-52-1	Pyrene-d10		D				

Page 01 of 01 U8005.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 17:34

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-11

Client ID: PEN21GW46R01

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi POT.	Adj.MDL
91-20-3	Naphthalene		0.4	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	J .	0.2	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		0.4	1.0	0.2	0.2	0.1
208-96-8	Acenaphthylene	Ū	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		0;4	1.0	0.2	0.2	0.07
86-73-7	Fluorene	I	0.1	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	I	0.06	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	- υ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a) anthracene	σ '	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	υ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.10	1.0	0.2	0.2	0.10
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	υ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		61%				
81103-79-9	Fluorene-d10		J 54%				
1718-52-1	Pyrene-d10		58%				
				•			

Page 01 of 01 U7993.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 18-MAY-2007 18:58

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-2

Client ID: PEN21GW5101

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		0.5	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	J	1.0	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		1	1.0	0.2	0.2	0.1
208-96-8	Acenaphthylene	υ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene	ΰ	0.07	1.0	0.2	0.2	0.07
86-73-7	Fluorene	σ	0.07	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	σ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	ŗŪ	0.06	1.0	0.2	0,2	0.06
56-55-3	Benzo(a) anthracene	υ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b) fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k) fluoranthene	ΰ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.09	1.0	0.2	0.2	0.09
191-24-2	Benzo(g,h,i)perylene	υ	0.08	1.0	0.2	0.2	0.08
53-70-3	Dibenzo(a,h)anthracene	υ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		55%				
81103-79-9	Fluorene-d10		J 49%				
1718-52-1	Pyrene-d10		52%				

Page 01 of 01 U7982.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 18-MAY-2007 18:09

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-1

Client ID: PEN21GW5202

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adi MDI.
91-20-3	Naphthalene	L	84	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	JL	95	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	L	80	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	ס	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		1.0	1.0	0.2	0.2	0.07
86-73-7	Fluorene		0.7	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	ד	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.05
206-44-0	Fluoranthene	υ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	Ū	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	Ū	0.07	1.0	0.2	0.2	0.08
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k) fluoranthene	ס	0.1	1.0	0.2	0.2	
50-32-8	Benzo(a)pyrene	_ס	0.05	1.0	0.2	0.2	0.1
193-39-5	Indeno(1,2,3-cd)pyrene	ט	0.1	1.0	0.2		0.05
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.1
53-70-3	Dibenzo (a, h) anthracene	ט	0.03	1.0		0.2	0.09
7297-45-2	2-Methylnaphthalene-d10	J	70%	1.0	0.2	0.2	0.1
81103-79-9	Fluorene-d10		61%				
1718-52-1	Pyrene-d10						
	-1-0-0		76%				

Page 01 of 01 U7981.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 16:49

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-1DL Client ID: PEN21GW5202

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	POL	Adi. POL	Adj.MDL
91-20-3	Naphthalene		140	40	0.2	8	5
91-57-6	2-Methylnaphthalene	J	140	40	0.2	8	3
90-12-0	1-Methylnaphthalene		130	40	0.2	8	6
208-96-8	Acenaphthylene	σ	2	40	0.2	8	2
83-32-9	Acenaphthene	ਧ	3	40	0.2	8	3
86-73-7	Fluorene	σ	3	40	0,2	8	3
85-01-8	Phenanthrene	ਹ	2	40	0.2	8	2
120-12-7	Anthracene	σ	2	40	0.2	8	2
206-44-0	Fluoranthene	σ.	2	40	0.2	8	2
129-00-0	Pyrene	σ	2	40	0.2	8	2
56-55-3	Benzo(a)anthracene	Ū	. 3	40	0.2	8	- 3
218-01-9	Chrysene	σ	. з	40	0.2	8	3
205-99-2	Benzo(b) fluoranthene	σ	3	40	0.2	8	3
207-08-9	Benzo(k)fluoranthene	σ	4	40	0.2	8	4 .
50-32-8	Benzo(a)pyrene	σ	2	40	0.2	8	2
193-39-5	Indeno(1,2,3-cd)pyrene	σ	. 4	40	0.2	8	4
191-24-2	Benzo(g,h,i)perylene	΄ σ	4	40	0.2	8	4
53-70-3	Dibenzo(a,h)anthracene	σ	5	40	0.2	8	5
7297-45-2	2-Methylnaphthalene-d10		D				
81103-79-9	Fluorene-d10		Ð				
1718-52-1	Pyrene-d10		D				

Page 01 of 01 U8010.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07 Analysis Date: 21-MAY-2007 16:49

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-10 Client ID: PEN21GW7301

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Add DOT.	Adj.MDL
91-20-3	Naphthalene	L	28	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	ᄁ	6	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		4	1.0	0.2	0.2	
208-96-8	Acenaphthylene	σ	0.06	1.0			0.2
83-32-9	Acenaphthene	I			0.2	0.2	0.06
86-73-7	Fluorene	U	0.10	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	_	0.07	1.0	0.2	0.2	0.07
		σ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	I	0.08	1.0	0.2	0.2	0.06
129-00-0	Pyrene	I	0.09	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	ד	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo (a,h) anthracene	σ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		78%	1.0	0.2	0.2	0.1
81103-79-9	Fluorene-d10		65%				
1718-52-1	Pyrene-d10		65%	*			
			00%				

Page 01 of 01 U7992.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 23:27

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-10DL Client ID: PEN21GW7301

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	TOG . F.S.A.	Adj.MDL
91-20-3	Naphthalene	•	35	10	0.2	2	1
91-57-6	2-Methylnaphthalene	រ .	6	10	0.2	2	0.7
90-12-0	1-Methylnaphthalene		4	10	0.2	2	2
208-96-8	Acenaphthylene	σ	0.6	10	0.2	2	0.6
83-32-9	Acenaphthene	σ	0.7	10	0.2	2	0.7
86-73-7	Fluorene	ט	0.7	10	0.2	2	0.7
85-01-8	Phenanthrene	ט	0.5	10	0.2	2	0.5
120-12-7	Anthracene	ט	0.6	10	0.2	2	0.6
206-44-0	Fluoranthene	σ	0.6	10	0.2	2	0.6
129-00-0	Pyrene	ט	0.6	10	0.2	2	0.6
56-55-3	Benzo (a) anthracene	ס	0.7	10	0.2	2	0.7
218-01-9	Chrysene	σ	0.7	10	0.2	2	0.7
205-99-2	Benzo(b)fluoranthene	· 😈	0.8	10	0.2	2	0.8
207-08-9	Benzo(k) fluoranthene	σ	1	10	0.2	2	1
50-32-8	Benzo (a) pyrene	σ	0.5	10	0.2	2	0.5
193-39-5	Indeno(1,2,3-cd)pyrene	σ	1	10	0.2	2	1
191-24-2	Benzo(g,h,i)perylene	σ	0.9	10	0.2	2	0.9
53-70-3	Dibenzo(a,h)anthracene	υ	1	10	0.2	2	1
7297-45-2	2-Methylnaphthalene-d10		Œ			. ~	~
81103-79-9	Fluorene-d10		D.				
1718-52-1	Pyrene-d10		D				

Page 01 of 01 U8000.D

# Report of Analytical Results

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 15:17

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-8

Client ID: PEN21GW7401

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Add DOI	Adj.MDL
91-20-3	Naphthalene	L	9	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	J	4	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		3	1.0	0.2	0.2	0.07
208-96-8	Acenaphthylene	ט	0.06	1.0	0.2	0.2	0.1
83-32-9	Acenaphthene	ט	0.07	1.0	0.2	0.2	0.06
86-73-7	Fluorene	σ	0.07	1.0	0.2	0.2	
85-01-8	Phenanthrene	I,	0.1	1.0	0.2	0.2	0.07
120-12-7	Anthracene	ם	0.06	1.0	0.2	0.2	0.05 0.06
206-44-0	Fluoranthene	I	0.1	1.0	0.2	0.2	
129-00-0	Pyrene	I	0.1	1.0	0.2	0.2	0.06 0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.08
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	υ	0.08	1.0	0.2	0.2	0.07
207-08-9	Benzo(k)fluoranthene	ਧ	0.1	1.0	0.2	0.2	0.08
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	ט	0.09	1.0	0.2	0.2	0.05
191-24-2	Benzo(g,h,i)perylene	υ	0.08	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	υ	0.1	1.0	0.2	0.2	0.08
7297-45-2	2-Methylnaphthalene-d10		63%	1.0	0.2	0.2	0.1
81103-79-9	Fluorene-d10		J 50%	*			
1718-52-1	Pyrene-d10		61%				

Page 01 of 01 U7990.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 19:14

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-8DL Client ID: PEN21GW7401

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		10	3.0	0.2	0.6	0.3
91-57-6	2-Methylnaphthalene	J	. 5	3.0	0.2	0.6	0.2
90-12-0	1-Methylnaphthalene		4	3.0	0.2	0.6	0.4
208-96-8	Acenaphthylene	ប	0.2	3.0	0.2	0.6	0.2
83-32-9	Acenaphthene	σ	0.2	3.0	0.2	0.6	0.2
86-73-7	Fluorene	σ	0.2	3.0	0.2	0.6	0.2
85-01-8	Phenanthrene	σ	0.1	3.0	0.2	0.6	0.1
120-12-7	Anthracene	σ	0.2	3.0	0.2	0.6	0.2
206-44-0	Fluoranthene	ប	0.2	3.0	0.2	0.6	0.2
129-00-0	Pyrene	I	0.2	3.0	0.2	0.6	0.2
56-55-3	Benzo(a) anthracene	σ	0.2	3.0	0.2	0.6	0.2
218-01-9	Chrysene	σ	0.2	3.0	0.2	0.6	0.2
205-99-2	Benzo(b)fluoranthene	σ	0.2	3.0	0.2	0.6	0.2
207-08-9	Benzo(k)fluoranthene	σ	0.3	3.0	0.2	0.6	0.3
50-32-8	Benzo(a)pyrene	σ	0.1	3.0	0.2	0.6	0.1
193-39-5	Indeno(1,2,3-cd)pyrene	σ.	0.3	3.0	0.2	0.6	0.3
191-24-2	Benzo(g,h,i)perylene	σ	0.2	3.0	0.2	0.6	0.2
53-70-3	Dibenzo(a,h)anthracene	σ	0.3	3.0	0.2	0.6	0.3
7297-45-2	2-Methylnaphthalene-d10		61%				
81103-79-9	Fluorene-d10		60%				
1718-52-1	Pyrene-d10		73%				

U7995.D

01 of 01

Page

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 16:03

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-9

Client ID: PEN21GW7501

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene	L	7	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	J	0.6	1.0	. 0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		0.5	1.0	0.2	0.2	0.1
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		0.2	1.0	0.2	0.2	0.07
86-73-7	Fluorene	I	0.1	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	σ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	υ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	΄ σ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	I	0.08	1.0	0.2	0.2	0.07
218-01-9	Chrysene	<b>I</b>	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	I	0.2	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	I	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	I	0.10	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	ਧ	0.09	1.0	0.2	0.2	0.09
191-24-2	Benzo(g,h,i)perylene	I	0.2	1.0	0.2	0.2	0.08
53-70-3	Dibenzo(a,h)anthracene	I	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		668				
81103-79-9	Fluorene-d10		J 57%			* 1	
1718-52-1	Pyrene-d10		57%				

Page 01 of 01 U7991.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 20:07

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-9DL Client ID: PEN21GW7501

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
91-20-3	Naphthalene		8	5.0	0.2	0.9	0.6
91-57-6	2-Methylnaphthalene	J	1	5.0	0.2	0.9	0.3
90-12-0	1-Methylnaphthalene	σ	0.7	5.0	0.2	0.9	0.7
208-96-8	Acenaphthylene	ט	0.3	5.0	0.2	0.9	0.3
83-32-9	Acenaphthene	σ	0.3	5.0	0.2	0.9	0.3
86-73-7	Fluorene	σ	0.3	5.0	0.2	0.9	0.3
85-01-8	Phenanthrene	σ	0.2	5.0	0.2	0.9	0.2
120-12-7	Anthracene	υ	0.3	5.0	0.2	0.9	0.3
206-44-0	Fluoranthene	σ	0.3	5.0	0.2	0.9	0.3
129-00-0	Pyrene	σ	0.3	5.0	0.2	0.9	0.3
56-55-3	Benzo (a) anthracene	ប	0.3	5.0	0.2	0.9	0.3
218-01-9	Chrysene	σ	0.3	5.0	0.2	0.9	0.3
205-99-2	Benzo(b) fluoranthene	σ	0.4	5.0	0.2	0.9	0.4
207-08-9	Benzo(k) fluoranthene	υ	0.5	5.0	0.2	0.9	0.5
50-32-8	Benzo(a)pyrene	σ	0.2	5.0	0.2	0.9	0.2
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.5	5.0	0.2	0.9	0.5
191-24-2	Benzo(g,h,i)perylene	σ	0.4	5.0	0.2	0.9	0.4
53-70-3	Dibenzo(a,h)anthracene	ਧ	0.6	5.0	0.2	0.9	0.6
7297-45-2	2-Methylnaphthalene-d10		65%				
81103-79-9	Fluorene-d10		598				
1718-52-1	Pyrene-d10		71%				

Page 01 of 01 U7996.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 18-MAY-2007 21:23

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-6

Client ID: PEN21GW7601

SDG: CT0056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene	L	. 9	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	J	3	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		2	1.0	0.2	0.2	0.1
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene	σ	0.07	1.0	0.2	0.2	0.07
86-73-7	Fluorene	σ	0.07	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	਼ ਹ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	Ū	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	- ਹ	0.06	1.0	0.2	. 0.2	0.06
129-00-0	Pyrene	σ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a) anthracene	σ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	σ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	ΰ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.09	1.0	0.2	0.2	0.09
191-24-2	Benzo(g,h,i)perylene	σ	0.08	1.0	0.2	0.2	0.08
53-70-3	Dibenzo(a,h)anthracene	υ .	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		59%				
81103-79-9	Fluorene-d10		J 42%				
1718-52-1	Pyrene-d10		J 42%				

Page 01 of 01 U7985.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 13:46

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-6DL Client ID: PEN21GW7601

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
91-20-3	Naphthalene		9	3.0	0.2	0.6	0.3
91-57-6	2-Methylnaphthalene	J	4	3.0	0.2	0.6	0.2
90-12-0	1-Methylnaphthalene	-	2	3.0	0.2	0.6	0.4
208-96-8	Acenaphthylene	ָס	0.2	3.0	0.2	0.6	0.2
83-32-9	Acenaphthene	Ū	0.2	3.0	0.2	0.6	0.2
86-73-7	Fluorene	σ .	0.2	3.0	0.2	0.6	0.2
85-01-8	Phenanthrene	σ	0.1	3.0	0.2	0.6	0.1
120-12-7	Anthracene	σ	0.2	3.0	0.2	0.6	0.2
206-44-0	Fluoranthene	ប	0.2	3.0	0.2	0.6	0.2
129-00-0	Pyrene	· <b>U</b>	0.2	3.0	0.2	0.6	0.2
56-55-3	Benzo(a)anthracene	σ	0.2	3.0	0.2	0.6	0.2
218-01-9	Chrysene	σ	0.2	3.0	0.2	0.6	0.2
205-99-2	Benzo(b) fluoranthene	σ	0.2	3.0	0.2	0.6	0.2
207-08-9	Benzo(k)fluoranthene	σ	0.3	3.0	0.2	0.6	0.3
50-32-8	Benzo(a)pyrene	υ	0.1	3.0	0.2	0.6	0.1
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.3	3.0	0.2	0.6	0.3
191-24-2	Benzo(g,h,i)perylene	σ	0.2	3.0	0.2	0.6	0.2
53-70-3	Dibenzo(a,h)anthracene	σ	0.3	3.0	0.2	0.6	0.3
7297-45-2	2-Methylnaphthalene-d10		59%				
81103-79-9	Fluorene-d10		J 43%				
1718-52-1	Pyrene-d10		J 41%				

Page 01 of 01 U8006.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 15:45

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-4DL

Client ID: PEN21GW3802D

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS# Compound

Petroleum Range Organics

n-Triacontane-D62

O-Terphenyl

Flags 1

Results DF

PQL Adj.PQL Adj.MDL 500 5000 2900

D

D

Page 01 of 01

CAE1123.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 04:52

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-3DL Client ID: PEN21GW3802

SDG: CT0056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics		18000	10	500	4800	2800
	n-Triacontane-D62		D				
	O-Terphenyl		D				

Page 01 of 01 CAE1115.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 03:36

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-11

Client ID: PEN21GW46R01

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics		2100	1.0	500	500	280
	n-Triacontane-D62		110%				
	O-Terphenyl		1148				

Page 01 of 01 CAE1114.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 23:50

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-2RA2 Client ID: PEN21GW5101

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics	I	290	1.0	500	500	290
	n-Triacontane-D62		92%				
	O-Terphenyl		94%				,

Page 01 of 01 CAE1111.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 18-MAY-2007 22:57

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-1RA Client ID: PEN21GW5202

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics		3100	1.0	500	510	300
	n-Triacontane-D62		93%				
	O-Terphenyl		95%				

Page 01 of 01 CAE1089.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 02:21

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-10RA Client ID: PEN21GW7301

SDG: CT0056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#

Compound

Petroleum Range Organics n-Triacontane-D62

O-Terphenyl

Flags

Results 2300 1.0 PQL Adj.PQL Adj.MDL 500 500

300

146% J152%

Page 01 of 01 CAE1113.d.

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 19-MAY-2007 02:42

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-8

Client ID: PEN21GW7401

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS# Compound

Petroleum Range Organics

n-Triacontane-D62 O-Terphenyl

Flags

Results

2300 1.0

PQL Adj.PQL Adj.MDL 500 500

290

888

92왕

Page 01 of 01 CAE1092.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 01:05

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-9RA

Client ID: PEN21GW7501

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics		1400	1.0	500	5.00	280
	n-Triacontane-D62		104%				
	O-Terphenyl		106%				

Page 01 of 01 CAE1112.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07 Analysis Date: 19-MAY-2007 01:27

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-6

Client ID: PEN21GW7601

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics		3700	1.0	500	500	300
	n-Triacontane-D62		90%				
	O-Terphenyl		94%				

01 of 01 CAE1091.d Page

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP01 10-12'	DP01 15-17'	DP02W 10-12'	DP02W 15-17'	Blank	DP03W 10-12'	DP03W 15-17'	DP04W 10-12'	DP04W 15-17'	DP05W 10-12'
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	1/10	1	1	1	1	1	1	1	1	1
MTBE	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.2
Ethylbenzene	< 1.0	< 10	< 1.0	2.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	13.2
m&p-Xylene	< 1.0	< 10	< 1.0	2.0	1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	9.7
o-Xylene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP06W 10-12'	DP07W 10-12'				·					
Analysis Date	05/01/07	05/01/07									
Matrix	Water	Water									
Dilution	1,	1									
MTBE	< 1.0								<u> </u>		
Benzene	< 1.0										
Toluene	< 1.0										
Ethylbenzene	< 1.0										
m&p-Xylene	< 1.0										
o-Xylene	< 1.0										
Naphthalene	< 1.0										

Chemist: Enoch

Cell Phone: 352-538-0926

KB Labs, Inc. 6821 SW Archer Road Gainesville, FL 32608

P: 352-367-0073

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP01S 4-5'	DP01S 6-7'	DP02S 0-5'	DP02S 5-6'	DP02S 6-7'	Blank	DP03S 5.5-6.5'	DP03S 4.5-5.5'	DP05S 5-6'	DP06S 4-5'
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Dilution	1	1	1	1	1	1	1	1	1	1	1
MTBE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Toluene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Ethylbenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
m&p-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
o-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Naphthalene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP07S 4.5-5.5'										
Analysis Date	05/01/07	-									
Matrix	Soil										
Dilution	1										
MTBE											
Benzene											
Toluene											
Ethylbenzene											
m&p-Xylene											
o-Xylene											
Naphthalene											

Chemist: Enoch Cell Phone: 352-538-0926

# Preliminary Sample Results 07-35 Ttnus NAS Pensacola, FL

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г.	JUZ		-00	10

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP01 10-12'	DP01 15-17'	DP02W 10-12'	DP02W 15-17	Blank					
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07			(1)		
Matrix	Water	Water	Water	Water	Water	Water					
Dilution	1	1/10	1	1	1	1			1		
MTBE	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0					
Benzene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0					
Toluene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0					
Ethylbenzene	< 1.0	< 10	< 1.0	2.0	1.3	< 1.0					
m&p-Xylene	< 1.0	< 10	< 1.0	2.0	1.4	< 1.0					
o-Xylene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0					
Naphthalene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0					

Chemist: Enoch

Cell Phone: 352-538-0926

# Preliminary Sample Results 07-35 Ttnus NAS Pensacola, FL



	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP <u>01</u> S 4-5'	DP <u>01</u> S 6-7'	DP <u>02</u> S 0-5'	DP <u>02</u> S 5-6'	DP <u>02</u> S 6-7'	Blank				
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07				
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Dilution	1	1	1	1	1	1	1				
MTBE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010				
Benzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010				
Toluene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	•			
Ethylbenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010				
m&p-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010				
o-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010				
Naphthalene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010				

**Chemist: Enoch** 

Cell Phone: 352-538-0926

P: 352-367-0073

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP01 10-12'	DP01 15-17'	DP02W 10-12'	DP02W 15-17'	Blank	DP03W 10-12'	DP03W 15-17'	DP04W 10-12'	DP04W 15-17'	DP05W 10-12'
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	- 1/10	1	1	1	1	1	1	1	1	1
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.2
Ethylbenzene	< 1.0	< 10	< 1.0	2.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	13.2
m&p-Xylene	< 1.0	< 10	< 1.0	2.0	1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	9.7
o-Xylene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP06W 10-12'	DP07W 10-12'	Blank	DP08 10-12'	DP09W 10-12'	DP10W 10-12'	DP11W 10-12'	DP12W 10-12'			
Analysis Date	05/01/07	05/01/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07			
Matrix	Water	Water	Water	Water	Water	Water	Water	Water			
Dilution	1	1	1	1	1	1	1	1			
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.0		1	
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1		
Ethylbenzene	< 1.0	< 1.0	< 1.0	4.2	< 1.0	1.1	< 1.0	1.3			
m&p-Xylene	< 1.0	< 1.0	< 1.0	6.7	< 1.0	1.0	< 1.0	< 1.0			
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
Naphthalene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	6.4	< 5.0	14.5			

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	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP01 10-12'	DP01 15-17'	DP02W 10-12'	DP02W 15-17'	Blank	DP03W 10-12'	DP03W 15-17'	DP04W 10-12'	DP04W 15-17'	DP05W 10-12'
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	1/10	1	1	1	1	1	1	1	1	1
MTBE	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.2
Ethylbenzene	< 1.0	< 10	< 1.0	2.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	13.2
m&p-Xylene	< 1.0	< 10	< 1.0	2.0	1.4	< 1.0	· < 1.0	< 1.0	< 1.0°	< 1.0	9.7
o-Xylene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP06W 10-12'	DP07W 10-12'	Blank	DP08 10-12'	DP09 10-12'						
Analysis Date	05/01/07	05/01/07	05/02/07	05/02/07	05/02/07						
Matrix	Water	Water	Water	Water	Water						
Dilution	1	1	1	1	1						
MTBE	< 1.0	< 1.0	< 1.0	< 1.0							
Benzene	< 1.0	< 1.0	< 1.0	< 1.0							
Toluene	< 1.0	< 1.0 ⁻	< 1.0	< 1.0							
Ethylbenzene	< 1.0	< 1.0	< 1.0	< 1.0							
m&p-Xylene	< 1.0	< 1.0	< 1.0	< 1.0							
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0							
Naphthalene	< 1.0	< 1.0	< 1.0	< 1.0							

Chemist: Enoch

Cell Phone: 352-538-0926

KB Labs, Inc. P: 352-367-0073

6821 SW Archer Road	
Gainesville, FL 32608	
D 050 007 0070	

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP01 10-12'	DP01 15-17'	DP02W 10-12'	DP02W 15-17'	Blank	DP03W 10-12'	DP03W 15-17'	DP04W 10-12'	DP04W 15-17'	DP05W 10-12'
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	1/10	1	1	1	1	1	1	1	1	1
MTBE	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.2
Ethylbenzene	< 1.0	< 10	< 1.0	2.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	13.2
m&p-Xylene	< 1.0	< 10	< 1.0	2.0	1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	9.7
o-Xylene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP06W 10-12'	DP07W 10-12'	Blank	DP08 10-12'	DP09 10-12'						
Analysis Date	05/01/07	05/01/07	05/02/07	05/02/07	05/02/07						
Matrix	Water	Water	Water	Water	Water				<u> </u>		
Dilution	1	1	1	1	1						
MTBE	< 1.0	< 1.0	< 1.0	< 1.0							
Benzene	< 1.0	< 1.0	< 1.0	< 1.0							
Toluene	< 1.0	< 1.0	< 1.0	< 1.0							
Ethylbenzene	< 1.0	< 1.0	< 1.0	4.2							
m&p-Xylene	< 1.0	< 1.0	< 1.0	6.7							
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0							
Naphthalene	< 1.0	< 1.0	< 1.0	< 1.0							

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	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP01S 4-5'	DP01S 6-7'	DP02S 0-5'	DP02S 5-6'	DP02S 6-7'	Blank	DP03S 5.5-6.5'	DP03S 4.5-5.5'	DP05S 5-6'	DP06S 4-5'
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Dilution	1	1	1	1	1	1	1	1	1	1	1
MTBE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Toluene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Ethylbenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
m&p-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
o-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Naphthalene	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP07S 4.5-5.5'	Blank	DP08S 5-6'	DP09S 5-6.5'	DP10S 5-6.5'		d d		3		
Analysis Date	05/01/07	05/02/07	05/02/07	05/02/07	05/02/07						
Matrix	Soil	Soil	Soil	Soil	Soil	,					
Dilution	1	1	1	1	1						
MTBE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	•					
Benzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010						
Toluene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010						
Ethylbenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010						
m&p-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010						
o-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010						
Naphthalene *	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050						

Chemist: Enoch

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# Preliminary Sample Results 07-35 Ttnus NAS Pensacola, FL

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP01 10-12'	DP01 15-17'	DP02W 10-12'	DP02W 15-17'	Blank	DP03W 10-12'	DP03W 15-17'	DP04W 10-12'	DP04W 15-17'	DP05W 10-12'
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	= 1	1/10	1	1	. 1	1	1	1	1	1	1
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.2
Ethylbenzene	< 1.0	< 10	< 1.0	2.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	13.2
m&p-Xylene	< 1.0	< 10	< 1.0	2.0	1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	9.7
o-Xylene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP06W 10-12'	DP07W 10-12'	Blank	DP08 10-12'	DP09W 10-12'	DP10W 10-12'	Clean	e,			31°
Analysis Date	05/01/07	05/01/07	05/02/07	05/02/07	05/02/07	05/02/07					
Matrix	Water	Water	Water	Water	Water	Water					
Dilution	1	1	1	1	1	1					
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		[			
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0					
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0					
Ethylbenzene	< 1.0	< 1.0	< 1.0	4.2	< 1.0	1.1		1.2			
m&p-Xylene	< 1.0	< 1.0	< 1.0	6.7	< 1.0	1.0					
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0					
Naphthalene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	6.4					

Chemist: Enoch

Cell Phone: 352-538-0926

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP01 10-12'	DP01 15-17'	DP02W 10-12'	DP02W 15-17'	Blank	DP03W 10-12'	DP03W 15-17'	DP04W 10-12'	DP04W 15-17'	DP05W 10-12'
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	1/10	1	1	1	1	1	1	1	1	1
MTBE	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.2
Ethylbenzene	< 1.0	< 10	< 1.0	2.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	13.2
m&p-Xylene	< 1.0	< 10	< 1.0	2.0	1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	9.7
o-Xylene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP06W 10-12'	DP07W 10-12'	Blank	DP08 10-12'	DP09W 10-12'	DP10W 10-12'	DP11W 10-12'	DP12W 10-12'	DP13W 10-12'	DP14W 10-12'	DP15W 10-12'
Analysis Date	05/01/07	05/01/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	1	1	1	1	1	1	1	1	1/10	1
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 50	< 5.0
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.0	< 1.0	< 10	< 1.0
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	23	< 1.0
Ethylbenzene	< 1.0	< 1.0	< 1.0	4.2	< 1.0	1.1	< 1.0	1.3	< 1.0	310	< 1.0
m&p-Xylene	< 1.0	< 1.0	< 1.0	6.7	< 1.0	1.0	< 1.0	< 1.0	< 1.0	720	< 1.0
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	36	< 1.0
Naphthalene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	6.4	< 5.0	14.5	< 5.0	260	< 5.0

Chemist: Enoch

Cell Phone: 352-538-0926

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP01S 4-5'	DP01S 6-7'	DP02S 0-6'	DP02S 5-6'	DP02S 6-7'	Blank	DP03S 5.5-6.5'	DP03S 4.5-5.5'	DP05S 5-6'	DP06S 4-5'
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Dilution	1	1	1	1	1	1	1	1	1	1	1
MTBE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Toluene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Ethylbenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
m&p-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
o-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Naphthalene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP07S 4.5-5.5'	Blank	DP08S 5-6'	DP09S 5-6.5'	:						
Analysis Date	05/01/07	05/02/07	05/02/07	05/02/07							
Matrix	Soil	Soil	Soil	Soil		-					
Dilution	1	1	1	1							
MTBE	< 0.010	< 0.010	< 0.010								
Benzene	< 0.010	< 0.010	< 0.010				,,				
Toluene	< 0.010	< 0.010	< 0.010			\$					
Ethylbenzene	< 0.010	< 0.010	< 0.010								
m&p-Xylene	< 0.010	< 0.010	< 0.010								
o-Xylene	< 0.010	< 0.010	< 0.010								
Naphthalene	< 0.010	< 0.010	< 0.010								

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	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP16W 10-12'	Blank	DP17W 10-12'	DP18W 10-12'	DP18W 15-17'	DP19W 10-12'	DP20W 10-12'				
Analysis Date	05/02/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07		<u> </u>		
Matrix	Water	Water	Water	Water	Water	Water	Water				
Dilution	1	1	1	1	1	1	1	]			
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0				
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Ethylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
m&p-Xylene	< 1.0	< 1.0	1.2	1.4	1.2	4.7	2.8				1
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Naphthalene	< 5.0	< 5.0 ·	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0				

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS		: 2			:						
Analysis Date						· · · · · · · · · · · · · · · · · · ·					
Matrix											
Dilution											Ш
MTBE										]	
Benzene											
Toluene	T										
Ethylbenzene							i		-		
m&p-Xylene											
o-Xylene											
Naphthalene											

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Cell Phone: 352-538-0926

# Preliminary Sample Results 07-35 Ttnus NAS Pensacola, FL

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP01S 4-5'	DP01S 6-7'	DP02S 0-5'	DP02S 5-6'	DP02S 6-7'	Blank	DP03S 5.5-6.5'	DP03S 4.5-5.5'	DP05S 5-6'	DP06S 4-5'
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Dilution	1	1	1	1	1	1	1	1	1	1	1
MTBE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Toluene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Ethylbenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
m&p-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
o-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Naphthalene	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

disconstitution in the second	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP07S 4.5-5.5'	Blank	DP08S 5-6'	DP09S 5-6.5'	DP10S 5-6.5'	DP11S 5-6'	Blank	DP21S 6.5-10'	DP22S 5.5-6'	DP22S 6-7.5'	DP23S 5-6'
Analysis Date	05/01/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Dilution	1	1	1	1	1	1	1	1, 1/20	1/20	1/20	1
MTBE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 1.0	< 1.0	< 0.050
Benzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.20	< 0.20	< 0.010
Toluene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.20	< 0.20	< 0.010
Ethylbenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.20	< 0.20	< 0.010
m&p-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.20	< 0.20	< 0.010
o-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.20	< 0.20	< 0.010
Naphthalene	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	10	1.4	2.2	0.070

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	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP16W 10-12'	Blank	DP17W 10-12'	DP18W 10-12'	DP18W 15-17'	DP19W 10-12'	DP20W 10-12'	DP20W 15-17'	DP21W 13-15'	DP22W 13-15'	DP23W 14-18'
Analysis Date	05/02/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	1	1	1	1	1	1	1	1	1	1
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m&p-Xylene	< 1.0	< 1.0	1.2	1.4	1.2	4.7	2.8	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	9.4	7.6	< 5.0

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP24W 15-17'	DP25W 14-18'	DP26W 13-15'				ž.			3
Analysis Date	05/04/07	05/04/07	05/04/07	05/04/07							
Matrix	Water	Water	Water	Water							
Dilution	1	1	1	1							
MTBE	< 5.0	< 5.0	< 5.0	< 5.0							
Benzene	< 1.0	< 1.0	< 1.0	< 1.0							
Toluene	< 1.0	< 1.0	< 1.0	< 1.0							
Ethylbenzene	< 1.0	< 1.0	< 1.0	< 1.0							
m&p-Xylene	< 1.0	< 1.0	< 1.0	< 1.0				10			
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0							
Naphthalene	< 5.0	< 5.0	14.9	13.3							

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Cell Phone: 352-538-0926

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP24S 5-6'	DP25S 4.5-6'	DP25S 6-7.5'	DP26S 4.5-6'	DP26S 6.5-7.5'	9				
Analysis Date	05/04/07	05/04/07	05/04/07	05/04/07	05/04/07	05/04/07				<del> </del>	
Matrix	Soil	Soil	Soil	Soil	Soil	Soil					
Dilution	1	1	1/40	1/40	1	1/100					
MTBE	< 0.050	< 0.050	< 2.0	< 2.0	< 0.050	< 5.0					
Benzene	< 0.010	< 0.010	< 0.40	< 0.40	< 0.010	< 1.0					
Toluene	< 0.010	< 0.010	< 0.40	< 0.40	< 0.010	< 1.0					
Ethylbenzene	< 0.010	< 0.010	< 0.40	< 0.40	< 0.010	< 1.0					
m&p-Xylene	< 0.010	< 0.010	< 0.40	< 0.40	< 0.010	< 1.0					
o-Xylene	< 0.010	< 0.010	< 0.40	< 0.40	< 0.010	< 1.0					I
Naphthalene	< 0.050	< 0.050	6.3	10	< 0.050	90					

en en en englier greet in de e	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
					:						
KB LABS					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
Analysis Date					2						
Matrix	<u> </u>	<u> </u>								1	
Dilution											
MTBE											
Benzene											
Toluene				]						Ī	
Ethylbenzene											ĺ
m&p-Xylene											
o-Xylene										·	
Naphthalene				Ì							

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Cell Phone: 352-538-0926

# Preliminary Sample Results 07-35 Ttnus NAS Pensacola, FL

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP16W 10-12'	Biank	DP17W 10-12'	DP18W 10-12'	DP18W 15-17'	DP19W 10-12'	DP20W 10-12'	DP20W 15-17'	DP21W 13-15'	DP22W 13-15'	DP23W 14-18'
Analysis Date	05/02/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	1	1	1	1	1	1	1	1	1	1
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m&p-Xylene	. < 1.0	< 1.0	1.2	1.4	1.2	4.7	2.8	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	. < 1;.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	. < 5.0	< 5.0	9.4	7.6	< 5.0

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
				1		!					
				;	:				785		1
KB LABS											
		027									
Analysis Date											
Matrix											
Dilution											
MTBE											
Benzene											
Toluene											
Ethylbenzene											
m&p-Xylene											
o-Xylene											
Naphthalene											

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Cell Phone: 352-538-0926

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP01 10-12'	DP01 15-17'	DP02W 10-12'	DP02W 15-17'	Blank	DP03W 10-12'	DP03W 15-17'	DP04W 10-12'	DP04W 15-17'	DP05W 10-12'
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	1/10	1	1	1	1	1	1	1	1	1
MTBE	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.2
Ethylbenzene	< 1.0	< 10	< 1.0	2.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	13.2
m&p-Xylene	< 1.0	< 10	< 1.0	2.0	1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	9.7
o-Xylene	< 1.0	< 10	< 1.0	< 1:0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP06W 10-12'	DP07W 10-12'	Blank	DP08 10-12'	DP09W 10-12'	DP10W 10-12'	DP11W 10-12'	DP12W 10-12'	DP13W 10-12'	DP14W 10-12'	DP15W 10-12'
Analysis Date	05/01/07	05/01/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	1	1	1	1	1	1	1	1	1/10	1
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 50	< 5.0
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.0	< 1.0	< 10	< 1.0
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	23	< 1.0
Ethylbenzene	< 1.0	< 1.0	< 1.0	4.2	< 1.0	1.1	< 1.0	1.3	< 1.0	310	< 1.0
m&p-Xylene	< 1.0	< 1.0	< 1.0	6.7	< 1.0	1.0	< 1.0	< 1.0	< 1.0	720	< 1.0
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	36	< 1.0
Naphthalene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	6.4	< 5.0	14.5	< 5.0	260	< 5.0

Chemist: Enoch

Cell Phone: 352-538-0926

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP16W 10-12'	Blank	DP17W 10-12'	DP18W 10-12'	DP18W 15-17'	DP19W 10-12'	DP20W 10-12'	DP20W 15-17'	DP21W 13-15'	DP22W 13-15'	DP23W 14-18'
Analysis Date	05/02/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	1	1	1	1	1	1	1	1	1	1
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m&p-Xylene	< 1.0	< 1.0	1.2	1.4	1.2	4.7	2.8	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	9.4	7.6	< 5.0

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP24W 15-17'	DP25W 14-18'	DP26W 13-15'	Blank	DP33W 13-15'	DP34W 13-15'	DP35W 13-15'	DP36W 13-15'	DP37W 13-15'	
Analysis Date	05/04/07	05/04/07	05/04/07	05/04/07	05/05/07	05/05/07	05/05/07	05/05/07	05/05/07	05/05/07	
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	
Dilution	1	1	1	1	1	1	1	1	1	1	
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	~
Ethylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
m&p-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	- Ti
Naphthalene	< 5.0	< 5.0	14.9	13.3	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	

Chemist: Enoch Cell Phone: 352-538-0926

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP01 10-12'	DP <u>01</u> 15-17'	DP <u>02</u> W 10-12'	DP <u>02</u> W 15-17'	Blank	DP <u>03</u> W 10-12'	DP <u>03</u> W 15-17'	DP04W 10-12'	DP04W 15-17'	DP05W 10-12'
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	1/10	1	1	1	1	1	1	1	1	1
MTBE	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.2
Ethylbenzene	< 1.0	< 10	< 1.0	2.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	13.2
m&p-Xylene	< 1.0	< 10	< 1,0	2.0	1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	9.7
o-Xylene	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP <u>oé</u> W 10-12'	DP <u>07</u> W 10-12'	Blank	DP08 10-12'	DP <u>09</u> W 10-12'	DP10W 10-12'	DP11W 10-12'	DP12W 10-12'	DP13W 10-12'	DP14W 10-12'	DP15W 10-12'
Analysis Date	05/01/07	05/01/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	1	1	1	-1	1	1	1	1	1/10	1
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 50	< 5.0
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.0	< 1.0	< 10	< 1.0
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	23	< 1.0
Ethylbenzene	< 1.0	< 1.0	< 1.0	4.2	< 1.0	1.1	< 1.0	1.3	< 1.0	310	< 1.0
m&p-Xylene	< 1.0	< 1.0	< 1.0	6.7	< 1.0	1.0	< 1.0	< 1.0	< 1.0	720	< 1.0
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	36	< 1.0
Naphthalene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	6.4	< 5.0	14.5	< 5.0	260	< 5.0

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	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP01S 4-5'	DP01S 6-7'	DP02S 0-5'	DP02S 5-6'	DP02S 6-7'	Blank	DP03S 5.5-6.5'	DP03S 4.5-5.5'	DP05S 5-6'	DP06S 4-5'
Analysis Date	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	04/30/07	05/01/07	05/01/07	05/01/07	05/01/07	05/01/07
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Dilution	1 1	1	1	1	1	1	1	1	1	1	1
MTBE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Toluene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Ethylbenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
m&p-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	<.0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
o-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Naphthalene	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP07S 4.5-5.5'	Blank	DP08S 5-6'	DP09S 5-6.5'	DP10S 5-6.5'	DP11S 5-6'	Blank	DP21S 6.5-10'	DP22S 5.5-6'	DP22S 6-7.5'	DP23S 5-6'
Analysis Date	05/01/07	05/02/07	05/02/07	05/02/07	05/02/07	05/02/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Dilution	1	1	1	1	1	1	1	1, 1/20	1/20	1/20	1
MTBE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 1.0	< 1.0	< 0.050
Benzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.20	< 0.20	< 0.010
Toluene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.20	< 0.20	< 0.010
Ethylbenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.20	< 0.20	< 0.010
m&p-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.20	< 0.20	< 0.010
o-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.20	< 0.20	< 0.010
Naphthalene	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	10	1.4	2.2	0.070

Chemist: Enoch Cell Phone: 352-538-0926

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP24S 5-6'	DP25S 4.5-6'	DP25S 6-7.5'	DP <u>26</u> S 4.5-6'	DP26S 6.5-7.5'	Blank	DP33S 5-6'	DP34S 4.5-5.5'	DP34S 5.5-6.5'	DP35S 4.5-6.5'
Analysis Date	05/04/07	05/04/07	05/04/07	05/04/07	05/04/07	05/04/07	05/05/07	05/05/07	05/05/07	05/05/07	05/05/07
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Dilution	1	1	1/40	1/40	1	1/100	1	* 1	1	1	1
MTBE	< 0.050	< 0.050	< 2.0	< 2.0	< 0.050	< 5.0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzene	< 0.010	< 0.010	< 0.40	< 0.40	< 0.010	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Toluene	< 0.010	< 0.010	< 0.40	< 0.40	< 0.010	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Ethylbenzene	< 0.010	< 0.010	< 0.40	< 0.40	< 0.010	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
m&p-Xylene	< 0.010	< 0.010	< 0.40	< 0.40	< 0.010	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
o-Xylene	< 0.010	< 0.010	< 0.40	< 0.40	< 0.010	< 1.0	< 0.010	< 0.010	< 0.010	0.015	< 0.010
Naphthalene	< 0.050	< 0.050	6.3	10	< 0.050	90	< 0.050	< 0.050	0.13	0.16	0.12

11 34	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP36S 6-7'	DP36S 7-8.5'	DP <u>37</u> S 6-7'	Blank	DP14S 4-5'D	NASP 21 DP <u>05</u> S 5- 6'D	DP26S 6-8'D	DP <u>25</u> S 4.5-6'D	NASP Site 21 DP35S 5-6'D		
Analysis Date	05/05/07	05/05/07	05/05/07	05/06/07	05/06/07	05/06/07	05/06/07	05/06/07	05/06/07		
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Dilution	1	1	1	1	1	1	1/200	1	1		
MTBE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 10	< 0.050	< 0.050		
Benzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 2.0	< 0.010	< 0.010		
Toluene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 2.0	< 0.010	< 0.010		
Ethylbenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 2.0	< 0.010	< 0.010		
m&p-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 2.0	< 0.010	< 0.010		
o-Xylene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 2.0	< 0.010	< 0.010		
Naphthalene	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	22	0.070	< 0.050		

Chemist: Enoch Cell Phone: 352-538-0926

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP1gW 10-12'	Blank	DP17W 10-12'	DP1 <u>8</u> W 10-12'	DP18W 15-17'	DP19W 10-12'	DP <u>20</u> W 10-12'	DP <u>20</u> W 15-17'	DP21W 13-15'	DP22W 13-15'	DP23W 14-18'
Analysis Date	05/02/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07	05/03/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	1	1	1	1	1	1	1	1	1	1
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m&p-Xylene	< 1.0	< 1.0	1.2	1.4	1.2	4.7	2.8	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	9.4	7.6	< 5.0

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	Blank	DP <u>24</u> W 15-17'	DP <u>25</u> W 14-18'	DP26W 13-15'	Blank	DP33W 13-15'	DP34W 13-15'	DP <u>35</u> W 13-15'	DP36W 13-15'	DP3 <u>7</u> W 13-15'	DP38W 18-22'
Analysis Date	05/04/07	05/04/07	05/04/07	05/04/07	05/05/07	05/05/07	05/05/07	05/05/07	05/05/07	05/05/07	05/05/07
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution	1	., 1	1	1	1	1	1	1	1	1	1
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m&p-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 5.0	< 5.0	14.9	13.3	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0



Chemist: Enoch Cell Phone: 352-538-0926 Units: ug/L for waters mg/kg for soils

	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
KB LABS	DP38W 26-30'	Blank	DP <u>14</u> W 15-19'	DP <u>14</u> W 26-30'	DP <u>39</u> W 10-14'						
Analysis Date	05/05/07	05/06/07	05/06/07	05/06/07	05/06/07						
Matrix	Water	Water	Water	Water	Water					<u></u>	
Dilution	1	1	1	1	1			-	l		
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0					<u> </u>	
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0						
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0					8 -	
Ethylbenzene	< 1.0	< 1.0	1.6	< 1.0	34,4				<u> </u>		
m&p-Xylene	< 1.0	< 1.0	1.7	8.2	55.6						
o-Xylene	< 1.0	< 1.0	< 1.0	< 1.0	1.7						
Naphthalene	< 5.0	< 5.0	< 5.0	< 5.0	21.8	,					

No. of the second	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
			100			- Campio is	Campio is	Cumple 12	Cample ID	Cample 1D	Cample 1D
KB LABS											
Analysis Date											
Matrix								· · · · · · · · · · · · · · · · · · ·			
Dilution					1					-	
MTBE								<u> </u>			
Benzene									<del></del>	-	<del> </del>
Toluene										1	<del> </del>
Ethylbenzene											<del></del>
m&p-Xylene				*1							
o-Xylene											<del> </del>
Naphthalene										<del> </del>	<del> </del>

Chemist: Enoch

Cell Phone: 352-538-0926

Units: ug/L for waters mg/kg for soils



# INTERNAL CORRESPONDENCE

TO:

MR. G. WALKER

DATE:

**JUNE 25, 2007** 

FROM:

**EDWARD SEDLMYER** 

**COPIES:** 

**DV FILE** 

SUBJECT:

ORGANIC DATA VALIDATION- VOA/PAH/TPH

CTO 0056, NAS PENSACOLA

**SDG CTO056-3** 

**SAMPLES:** 

5/Soil

DP05S 5-6D

DP14S 4-5D

DP25S 4.5-6D

DP26S 6-8D

DP33S 5-6D

#### **OVERVIEW**

The sample set for CTO 0056, NAS Pensacola, SDG CTO056-3 consists of five (5) soil environmental samples. All samples were analyzed for BTEX volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and total petroleum hydrocarbon (TPH).

The samples were collected by TetraTech NUS on May 6, 2007 and analyzed by Katahdin Analytical Services, Inc. All analyses were conducted in accordance with SW-846 Method 8260B, 8270SIM, and FDEP FL-PRO (TPH) analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
  - Holding times
- Initial/continuing calibrations
  - Laboratory method blank results
- Detection Limits

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A.

#### Volatiles

No qualification of the data was necessary.

#### **PAHs**

Sample DP05S 5-6D had a high internal standard in the initial run. The sample was re-analyzed with similar internal standard recoveries. The initial analysis is considered the valid run and was used for validation.

Sample DP25S 4.5-6D required a 2X dilution for a 2-methylnaphthalene concentration greater than the linear calibration range of the instrument. The 2-methylnaphthalene result is reported from the 2X dilution. All other results are reported from the undiluted analysis.

Sample DP26S 6-8D required a 20X dilution for several compounds with concentrations greater than the linear range of the instrument. A 100X dilution was also required because of concentrations greater than the

linear range of the instrument for 1-methylnaphthalene and 2-methylnaphthalene. An undiluted analysis was not reported by the laboratory due to the difficult matrix of the sample and the high concentrations of PAHs. The compounds 1-methylnaphthalene and 2-methylnaphthalene are reported from the 100X dilution and all other compounds are reported from the 20X dilution.

#### **TPH**

TPH was detected in the method blanks at the following maximum concentration:

Compound TPH Maximum Concentration 10 mg/kg

Blank
Action Level
50 mg/kg

An action level of 5X the maximum contaminant concentration was established to evaluate laboratory contamination for TPH. Dilution factors and sample aliquots were taken into consideration during the application of all action levels. The affected positive results were qualified (U) as a result of blank contamination for TPH.

#### **Additional Comments:**

Positive results less than the reporting limit (RL) were qualified as estimated "J", due to uncertainty near the detection limit.

#### **EXECUTIVE SUMMARY**

Laboratory Performance Issues: Three samples were qualified due to TPH blank contamination.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the DoD QSM for Environmental Laboratories.

Tetra Tech NUS

Edward Sedlmyer Chemist/Data Validator

TetraTech NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer

#### Attachments:

Appendix A - Qualified Analytical Results

Appendix B - Results as Reported by the Laboratory

Appendix C - Support Documentation

# **APPENDIX A**

**QUALIFIED ANALYTICAL RESULTS** 

#### **Data Validation Qualifier Codes:**

A = Lab Blank Contamination

B = Field Blank Contamination

C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)

C01 = GC/MS Tuning Noncompliance

D = MS/MSD Recovery Noncompliance

E = LCS/LCSD Recovery Noncompliance

F = Lab Duplicate Imprecision

G = Field Duplicate Imprecision

H = Holding Time Exceedance

I = ICP Serial Dilution Noncompliance

J = GFAA PDS - GFAA MSA's r < 0.995 / ICP PDS Recovery Noncompliance

K = ICP Interference - includes ICS % R Noncompliance

L = Instrument Calibration Range Exceedance

M = Sample Preservation Noncompliance

N = Internal Standard Noncompliance

N01 = Internal Standard Recovery Noncompliance Dioxins

N02 = Recovery Standard Noncompliance Dioxins

N03 = Clean-up Standard Noncompliance Dioxins

O = Poor Instrument Performance (e.g. base-line drifting)

P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)

Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)

R = Surrogates Recovery Noncompliance

S = Pesticide/PCB Resolution

T = % Breakdown Noncompliance for DDT and Endrin

U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC

V = Non-linear calibrations; correlation coefficient r < 0.995

W = EMPC result

X = Signal to noise response drop

Y = Percent solids <30%

Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00583

SDG: CTO056-3 MEDIA: SOIL DATA FRACTION: OV

							Val Qual	Qual Code	)		)		<b>D</b>	
							Lab		_	_	⊃	_	_	_ 
4.5-6D	_	<del>-,</del>						Result Qual	-	6.0	4	2	2	9
DP25S 4.5-6D	5/6/2007	3A2171	MN	JG/KG	7.1			<u>~</u>						
	цŋ	(O)	~	ر	7									
								eter						
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e Se	_date		æ		olids	9. E			끧	THYLBENZENE	I+P-XYLENES	ä	빙	OTAL XYLENES
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:			BENZENE	ETHYL	M+P-X	O-XYLENE	TOLUENE	TOTAL
							Qual	Code						
							Val Qual	Result Qual Qual Code	>	>	ר	ר	>	>
							Lab	Qual	b	Э	ם	Э	ח	>
DP14S 4-5D	200	71-3		ഗ				Result	-	-	5	2	2	7
DP14	5/6/2007	SA2171-3	Σ	UG/KG	75.9									
								Parameter						
								Pare		ENE ENE	Si			NES
nsample	samp_date	lab_id	qc_type	S	Pct_Solids	DUP_OF:			SENZENE	ETHYLBENZEN	I+P-XYLENES	-XYLENE	OLUENE	OTAL XYLENE
nsa	san	gp	양	nnits	Pc	<u>D</u>		<b>a</b>	MH MH	臣	₹	ŏ	덛	<u> </u>
							Val Qual	Result Qual Code		<u>п</u>				
							Val			7	⊃	⊃		⊃
DRA		≴					Lab	IT Qua	9	-	<b>4</b>	2	10	5
DP05S 5-6DRA	5/6/2007	SA2171-4RA		χ Ω				Resn					Ŧ	
DP(	2/9/	SAS	Σ	UG/KG	94.8									
								Parameter						
	Ф				"			Par		ZENE	ES			ENES
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:			ENZENE	THYLBENZENE	4+P-XYLENES	O-XYLENE	OLUENE	OTAL XYLENES
nss	sar	lab	ပ္ပ	ш	Pc	Da			BE	듑	¥	ŏ	Σ	10

PROJ_NO: 00583

SDG: CT0056-3 MEDIA: SOIL DATA FRACTION: OV

DP33S 5-6D	5/6/2007	SA2171-2	Ν	UG/KG	84.5	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
DP26S 6-8DRA	5/6/2007	SA2171-5RA	ΣZ	UG/KG	93.9	
nsample	samp_date	lab_id	dc_type	units	Pct_Solids	DUP_OF:

Parameter	Result Qual Qual Code	Lab Qual	Val Qual	Qual	Parameter	Result	Lab Val Result Qual Qual	Val Qual	
BENZENE	-	<b>3</b>	5		BENZENE	-	5	⊃	1
ETHYLBENZENE	21				ETHYLBENZENE	0.9	)	_	1.
M+P-XYLENES	09				M+P-XYLENES	4	כ	>	1
O-XYLENE	2	5	>		O-XYLENE	2	Э	⊃	ŀ
TOLUENE	2		>		TOLUENE	2	כ	⊃	1
TOTAL XYLENES	09				TOTAL XYLENES	9	Э	⊃	I

Qual Code

PROJ_NO: 00583

SDG: CTO056-3 MEDIA: SOIL DATA FRACTION: PAH

	Qual		Ф.	۵		<u>а</u>	۵		۵	۵	۵		م	۵.	۵		۵	_	
	Val Qual		7	7	<b>¬</b>	7	7		-	7	7	>	7	7	7		7	7	
	Lab Qual		_	_	_	_	-		-	_	_	>	_	_	_		_	_	
DP25S 4.5-6D 5/6/2007 SA2140-4 NM UG/KG 77.1	Result	180	12	8	2	19	22	92	=	4	8	വ	2	9	22	33	4	16	
DP25S 4.5 5/6/2007 SA2140-4 NM UG/KG											-		-						
	neter	N.				岀		ENE	当			CENE			ä				
	Parameter	-METHYLNAPHTHALENE	뮏	ENE		BENZO(A)ANTHRACENE	H.	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE		DIBENZO(A,H)ANTHRACENE	) 발		NDENO(1,2,3-CD)PYRENE		븯		
nsample samp_date lab_id qc_type units Pct_Solids		HYLNAP	ACENAPHTHENE	ACENAPHTHYLENE	ANTHRACENE	(A)ANT	BENZO(A)PYRENE	(B)FLU	(G,H,I)F	(K)FLU	SENE	ZO(A,H)	LUORANTHENE	ËNE	0(1,2,3-	NAPHTHALENE	PHENANTHRENE	ш	
nsample samp_date lab_id qc_type units Pct_Solids		1-MET	ACEN/	ACEN/	ANTH	BENZ	BENZ	BENZ	BENZC	BENZ	CHRYSENE	DIBEN	E S	FLUORENE	INDEN	NAPH	PHEN/	PYRENE	
	Qual				а.			_											
	Val Qual	5	)	_	7	n	_	7	ס	n	_	ח	n	Э	n	n	Þ	D	)
H Y	Lab Qual	>	>	<b>&gt;</b>	_	_	>	-	ר	n	>	_	)	_	٦	_	5	5	_
DP14S 4-5DRA 5/6/2007 SA2140-1RA NM UG/KG 75.9	Result	12	9	8	က	വ	4	9	4	4	4	4	5	5	4	9	က	က	4
DP14S 4- 5/6/2007 SA2140-1 NM UG/KG 75.9			-	-															
				:							:								
	Parameter	ENE	ENE				빓		HENE	N.	HENE TENE		ACENE			HE.			
	Para	PHTHA	PHTHAL	H	YLENE	ш	THRACENE	HENE	JORANT	PERYLE	JORANTHENE	:	)ANTHF	H		-CD)PY	¥	ENE	
nsample samp_date lab_id qc_type units Pct_Solids		-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	ACENAPHTHE	<b>ACENAPHTHY</b>	ANTHRACENE	BENZO(A)ANT	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLU(	CHRYSENE	DIBENZO(A,H)ANTHRACENE	FLUORANTHE	FLUORENE	NDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PHENANTHRENE	N.
nsample samp_ds lab_id qc_type units Pct_Solii		1-ME	S-ME	ACE	ACE	ANT	BEN	BENZ	BENZ	BENZ	BENZ	뚬	兽	3	E S	볼	NAP	PHE	PYRENE
	Qual					Д.							<u>a</u>					凸	а.
	Val Qual	Þ	>	⊃		7							٦		>		>	ר	7
	Lab Qual	כ	⊃	n		1				*			_	-	>		>	-	-
DP05S 5-6D 5/6/2007 SA2140-2 NM UG/KG 94.8	Lab Result Qual	10	8	9	23	4	36	48	22	44	24	37	7	24	3	88	3	5	8
DP05S 5 5/6/2007 SA2140-: NM UG/KG 94.8																			
	Parameter	LENE	LENE				ENE		TENE	ENE	THENE		<b>ACENE</b>			RENE			
	Para	PHTHA	PHTHA	ENE	YLENE	ш	THRACE	RENE	JORANI	PERYL	JORANI		)ANTHF	ENE		-cD)PY	믲	ENE	
nsample samp_date lab_id qc_type units Pct_Solids DUP_OF:		-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	<b>ACENAPHTHENE</b>	<b>ACENAPHTHYLENE</b>	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	CHRYSENE	DIBENZO(A,H)ANTHRACENE	FLUORANTHENE	FLUORENE	NDENO(1,2,3-CD)PYRENE	NAPHTHALENE	<b>PHENANTHRENE</b>	J.
nsample samp_da lab_id qc_type units Pct_Solic		1-ME	2-ME	ACEN	ACEN	ANT	BENZ	BENZ	BENZ	BENZ	BENZ	SH	DIBEI	FLUC	FLUO	INDE	NAP	PHE	PYRENE

SDG: CTO056-3 MEDIA: SOIL DATA FRACTION: PAH

nsample	DP25S 4.5-6DDL	nsample
samp_date	5/6/2007	samp_date
lab_id	SA2140-4DL	lab_id
qc_type	ΣZ	qc_type
units	UG/KG	nnits
Pct_Solids	77.1	Pct_Solids
DUP_OF:		DUP_OF:
	101	

Parameter	Result	Lab Qual	Val Qual	Qual Code
2-METHYLNAPHTHALENE	250			

Val Qual Qual Code

Lab Result Qual (

Parameter

1-METHYLNAPHTHALENE 2-METHYLNAPHTHALENE

10000

DP26S 6-8DDL2 5/6/2007 SA2140-3DL2 NM UG/KG

nsample samp_date

DP26S 6-8DDL 5/6/2007 SA2140-3DL 93.9

Pct_Solids DUP_OF:

lab_id qc_type

units

NM UG/KG 93.9

<del>-</del>			Lab	\ اها	Qual
<u>e</u>	Parameter	Result	Qual	Qual	Code
	ACENAPHTHENE	360	-	7	۵
	ACENAPHTHYLENE	47	)	⊃	
	ANTHRACENE	77	_	⊃	
	BENZO(A)ANTHRACENE	64	D	b	
	BENZO(A)PYRENE	64	Ω	_	
	BENZO(B)FLUORANTHENE	79	-	7	ட
	BENZO(G,H,I)PERYLENE	210	_	7	۵
	BENZO(K)FLUORANTHENE	64	D	⊃	
	CHRYSENE	62	→	<b>D</b>	
	DIBENZO(A,H)ANTHRACENE	130	_	7	<u>a</u>
	FLUORANTHENE	74	Ω	n	
	FLUORENE	160	_	7	գ
	INDENO(1,2,3-CD)PYRENE	340	-	7	۵.
	NAPHTHALENE	3500			
	PHENANTHRENE	99	n	n	
	PYRENE	89	U	n	

SDG: CTO056-3 MEDIA: SOIL DATA FRACTION: PAH

 nsample
 DP33S 5-6D

 samp_date
 5/6/2007

 lab_id
 SA2140-5

 qc_type
 NM

 units
 UG/KG

 Pct_Solids
 84.5

DUP_OF:

1-METHYLNAPHTHALENE 2-METHYLNAPHTHALENE ACENAPHTHENE	11			
2-METHYLNAPHTHALENE ACENAPHTHENE		)	D	
ACENAPHTHENE	<u>ი</u>	)	٦	
	7	>	⊃	
ACENAPHTHYLENE	က	>	ח	
ANTHRACENE	4	٦	ר	
BENZO(A)ANTHRACENE	4	כ	n	
BENZO(A)PYRENE	4	כ	⊃	
BENZO(B)FLUORANTHENE	4	כ	ר	
BENZO(G,H,I)PERYLENE	4	Э	n	
BENZO(K)FLUORANTHENE	4	ס	n	
CHRYSENE	ဇ	2	Э	
DIBENZO(A,H)ANTHRACENE	4	כ	ר	
FLUORANTHENE	4	n	n	
FLUORENE	4	n	⊃	
INDENO(1,2,3-CD)PYRENE	ည	n	n	
NAPHTHALENE	3	n	n	
PHENANTHRENE	3	n	n	
PYRENE	4	_	ſ	Д

SDG: CT0056-3 MEDIA: SOIL DATA FRACTION: PET

nsample	DP05S 5-6D	nsample	DP14S 4-5D	nsample	DP25S 4.5-6D
samp_date	5/6/2007	samp_date	5/6/2007	samp_date	5/6/2007
lab_id	SA2140-2	lab_id	SA2140-1	lab_id	SA2140-4
dc_type	ΣZ	qc_type	MN	qc_type	ΨN
Pct_Solids	94.8	Pct_Solids	75.9	Pct_Solids	77.1
DUP OF:		DUP OF:		DUP OF	

Qual	٧
Val Qual	ח
Result	28
units	MG/KG
Parameter	TPH (C08-C40)

Val Qual Qual Code	¥
Val Qual	ח
Result	32
units	MG/KG
Parameter	TPH (C08-C40)

Parameter	nnits	Result Val Qual	Val Qual	Val Qual Qual Code
PH (C08-C40)	MG/KG	120		

SDG: CTO056-3 MEDIA: SOIL DATA FRACTION: PET

nsample	samp_date	lab_id	qc_type	Pct_Solids	DUP_OF:
DP26S 6-8DDL	5/6/2007	SA2140-3DL	MM	93.9	
nsample	samp_date	lab_id	dc_type	Pct_Solids	DUP_OF:

DP33S 5-6D 5/6/2007 SA2140-5 NM 84.5

ameter units Result			•		
47.14.	Parameter	nnits	Result	Val Qual	Val Qual Qual Code
MG/KG	TPH (C08-C40)	MG/KG	4000		

TPH (C08-C40) MG/KG 13 U A	Parameter units	Result	Val Qual	Qual
		13	n	٧

# APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/09/07

Extraction Date:

Analysis Date: 15-MAY-2007 19:52

Report Date: 05/30/2007

Matrix: SOIL % Solids: 94.8 Lab ID: SA2171-4RA Client ID: DP05S 5-6D

SDG: CTO056-3 Extracted by:

Extraction Method: SW846 5035

Analyst: DMF

M3721.D

Analysis Method: SW846 8260B

Lab Prep Batch: WG38951

Units: ug/Kgdrywt

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
108-88-3	Toluene		10	1.0	5	5	2
71-43-2	Benzene		6	1.0	5	5	0.9
100-41-4	Ethylbenzene	I	2	1.0	5	5	0.8
	m+p-Xylenes	σ	4	1.0	10	10	4
95-47-6	o-Xylene	σ	2	1.0	5	5	2
1330-20-7	Xylenes (total)	σ	5	1.0	15	15	5
1868-53-7	Dibromofluoromethane		80%				
17060-07-0	1,2-Dichloroethane-D4		78%				
2037-26-5	Toluene-D8		78%				
460-00-4	P-Bromofluorobenzene		75%				

Page

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/09/07

Extraction Date:

Analysis Date: 14-MAY-2007 22:52

Report Date: 05/30/2007

Matrix: SOIL % Solids: 75.9

Lab ID: SA2171-3 Client ID: DP14S 4-5D

SDG: CTO056-3 Extracted by:

Extraction Method: SW846 5035

Analyst: DMF

Analysis Method: SW846 8260B

Lab Prep Batch: WG38921

Units: ug/Kgdrywt

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adi MDI.
108-88-3	Toluene	υ	2	1.0	5	7	2
71-43-2	Benzene	ΰ	1	1.0	5	7	
100-41-4	Ethylbenzene	ד	1	1.0	5	7	1
	m+p-Xylenes	ט	5	1.0		•	1
95-47-6	o-Xylene	Ū			10	13	5
1330-20-7	Xylenes (total)	ប	2	1.0	5	7	2
1868-53-7	Dibromofluoromethane	U	7	1.0	15	20	7
			768				
17060-07-0	1,2-Dichloroethane-D4		74%				
2037-26-5	Toluene-D8		79%				
460-00-4	P-Bromofluorobenzene		80%				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/09/07

Extraction Date:

Analysis Date: 14-MAY-2007 22:15

Report Date: 05/30/2007

Matrix: SOIL % Solids: 77.1

Lab ID: SA2171-1

Client ID: DP25S 4.5-6D

SDG: CT0056-3 Extracted by:

Extraction Method: SW846 5035

Analyst: DMF

Analysis Method: SW846 8260B

Lab Prep Batch: WG38921

Units: ug/Kgdrywt

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
108-88-3	Toluene	σ	2	1.0	5	5	2
71-43-2	Benzene	σ	. 1	1.0	5	5	1
100-41-4	Ethylbenzene	Ū	0.9	1.0	5	5	0.9
	m+p-Xylenes	σ	4	1.0	10	11	4
95-47-6	o-Xylene	υ	2	1.0	5	5	2
1330-20-7	Xylenes (total)	· <b>U</b>	6	1.0	15	16	6
1868-53-7	Dibromofluoromethane		80%			±0	
17060-07-0	1,2-Dichloroethane-D4		76%				
2037-26-5	Toluene-D8		79%				
460-00-4	P-Bromofluorobenzene		95%				
•							
	Page	01 of 01	M3701.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/09/07

Extraction Date:

Analysis Date: 15-MAY-2007 21:42

Report Date: 05/30/2007

Matrix: SOIL % Solids: 93.9

Lab ID: SA2171-5RA Client ID: DP26S 6-8D

SDG: CT0056-3 Extracted by:

Extraction Method: SW846 5035

Analyst: DMF

Analysis Method: SW846 8260B

Lab Prep Batch: WG38951

Units: ug/Kgdrywt

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
108-88-3	Toluene	ਧ	2	1.0	5	6	2
71-43-2	Benzene `	σ	1	1.0	5	6	1
100-41-4	Ethylbenzene		21	1.0	5	6	0.9
	m+p-Xylenes		60	1.0	10	12	4
95-47-6	o-Xylene	υ -	2	1.0	5	6	2 .
1330-20-7	Xylenes (total)		60	1.0	15	17	6
1868-53-7	Dibromofluoromethane		84%				
17060-07-0	1,2-Dichloroethane-D4		83%				
2037-26-5	Toluene-D8		808				
460-00-4	P-Bromofluorobenzene		J1200%				
						·	

Page 01 of 01 M3724.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/09/07

Extraction Date:

Analysis Date: 14-MAY-2007 16:44

Report Date: 05/30/2007

Matrix: SOIL % Solids: 84.5

Lab ID: SA2171-2 Client ID: DP33S 5-6D

SDG: CTO056-3 Extracted by:

Extraction Method: SW846 5035

Analyst: DMF

M3692.D

Analysis Method: SW846 8260B

Lab Prep Batch: WG38921

Units: ug/Kgdrywt

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
108-88-3	Toluene	υ	2	1.0	5	5	2
71-43-2	Benzene	υ	1	1.0	5	5	1
100-41-4	Ethylbenzene	. ס	0.9	1.0	5	5	0.9
	m+p-Xylenes	Ū	. 4	1.0	10	11	4
95-47-6	o-Xylene	ט י	2	1.0	5	5	2
1330-20-7	Xylenes (total)	σ	6	1.0	15	16	6
1868-53-7	Dibromofluoromethane		82%				G
17060-07-0	1,2-Dichloroethane-D4		83%				
2037-26-5	Toluene-D8		77%				
460-00-4	P-Bromofluorobenzene		80%				

01 of 01

Page

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07
Received Date: 05/08/07
Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 20:15

Report Date: 05/22/2007

Matrix: SOIL % Solids: 94.8

Lab ID: SA2140-2 Client ID: DP05S 5-6D

SDG: CTO056-3 Extracted by: KM

Extraction Method: SW846 3550

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38781

Units: ug/Kgdrywt

CAS#	Compound	<u>'</u>					
	<del></del>	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene	σ	3	1.0	20	21	3
91-57-6	2-Methylnaphthalene	σ	8	1.0	20	21	8
90-12-0	1-Methylnaphthalene	ט	. 10	1.0	20	21	10
208-96-8	Acenaphthylene		23	1.0	20	21	2
83-32-9	Acenaphthene	Ū	6	1.0	20	21	6
86-73-7	Fluorene	ד	3	1.0	20	21	3
85-01-8	Phenanthrene	I	5	1.0	20	21	3.
120-12-7	Anthracene	I	4	1.0	20		
206-44-0	Fluoranthene	_	24	1.0		21	4
129-00-0	Pyrene.	I			20	21	4
56-55-3	Benzo(a)anthracene	T	20	1.0	20	21	3
218-01-9			36	1.0	20	21	3
	Chrysene		37	1.0	20	21	3
205-99-2	Benzo (b) fluoranthene		57	1.0	20	21	3
207-08-9	Benzo(k) fluoranthene		24	1.0	20	21	3
50-32-8	Benzo(a)pyrene		48	1.0	20	21	3
193-39-5	Indeno(1,2,3-cd)pyrene		88	1.0	20	21	5
191-24-2	Benzo(g,h,i)perylene		44	1.0	20	21	3
53-70-3	Dibenzo(a,h)anthracene	I	7	1.0	20	21	
7297-45-2	2-Methylnaphthalene-d10		75%	1.0	20	21	4
81103-79-9	Fluorene-d10		66 <del>8</del>				
1718-52-1	Pyrene-d10		74%				
	<del></del>		710				

Page 01 of 01 U7967.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07 Extraction Date: 05/10/07

Analysis Date: 18-MAY-2007 17:22

Report Date: 05/22/2007

Matrix: SOIL % Solids: 94.8

Lab ID: SA2140-2RA Client ID: DP05S 5-6D

SDG: CTO056-3 Extracted by: KM

Extraction Method: SW846 3550

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38781

Units: ug/Kgdrywt

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adi Mot.
91-20-3	Naphthalene	. σ	3	1.0	20	21	3
91-57-6	2-Methylnaphthalene	Ü.	8	1.0	20	21	8
90-12-0	1-Methylnaphthalene	σ	10	1.0	20	21	10
208-96-8	Acenaphthylene		24	1.0	20	21	2
83-32-9	Acenaphthene	ΰ	6	1.0	20	21	6
86-73-7	Fluorene	σ	3	1.0	20	21	3
85-01-8	Phenanthrene	I	5	1.0	20	21	3
120-12-7	Anthracene	. I	. 5	1.0	20	21	4
206-44-0	Fluoranthene		24	1.0	20	21	4
129-00-0	Pyrene	I	20	1.0	20	21	-3
56-55-3	Benzo(a)anthracene		40	1.0	20	21	3
218-01-9	Chrysene	•	33	1.0	20	21	3
205-99-2	Benzo(b)fluoranthene		59	1.0	20	21	3
207-08-9	Benzo(k)fluoranthene		23	1.0	20	21	3
50-32-8	Benzo(a)pyrene		48	1.0	20	21	3
193-39-5	Indeno(1,2,3-cd)pyrene		66	1.0	20	21	5
191-24-2	Benzo(g,h,i)perylene		37	1.0	20	21	3
53-70-3	Dibenzo(a,h)anthracene	I	5	1.0	20	21	4
7297-45-2	2-Methylnaphthalene-d10		74%				<u>*</u> .
81103-79-9	Fluorene-d10		65%				
1718-52-1	Pyrene-d10		76%				

Page 01 of 01 U7980.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07
Received Date: 05/08/07
Extraction Date: 05/10/07

Analysis Date: 18-MAY-2007 16:36

Report Date: 05/22/2007

Matrix: SOIL % Solids: 75.9 Lab ID: SA2140-1RA Client ID: DP14S 4-5D

SDG: CTO056-3 Extracted by: KM

Extraction Method: SW846 3550

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38781

Units: ug/Kgdrywt

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL A	Adi.MDL
91-20-3	Naphthalene	σ	3	1.0	20	26	3
91-57-6	2-Methylnaphthalene	σ	10	1.0	20	26	10
90-12-0	1-Methylnaphthalene	σ	12	1.0	20	26	12
208-96-8	Acenaphthylene	I	3	1.0	20	26	3
83-32-9	Acenaphthene	σ	. 8	1.0	20	26	8
86-73-7	Fluorene	υ.	4	1.0	20	26	4
85-01-8	Phenanthrene	σ	3	1.0	20	26	3
120-12-7	Anthracene	σ	5	1.0	20	26	5
206-44-0	Fluoranthene	σ	5	1.0	20	26	5
129-00-0	Pyrene	σ	4	1.0	20	26	4
56-55-3	Benzo(a)anthracene	σ	4	1.0	20	26	4
218-01-9	Chrysene	υ	4	1.0	20	26	4
205-99-2	Benzo(b)fluoranthene	σ	4	1.0	20	26	4
207-08-9	Benzo(k)fluoranthene	· U	4	1.0	20	26	4
50-32-8	Benzo(a)pyrene	I	6	1.0	20	26	4
193-39-5	Indeno(1,2,3-cd)pyrene	υ	6	1.0	20	26	6
191-24-2	Benzo(g,h,i)perylene	σ	4	1.0	20	26	4
53-70-3	Dibenzo(a,h)anthracene	σ	5	1.0	20	26	5
7297-45-2	2-Methylnaphthalene-d10		76%				
81103-79-9	Fluorene-d10		75%	•			
1718-52-1	Pyrene-d10		86%				

Page 01 of 01 U7979.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07 Extraction Date: 05/10/07

Analysis Date: 18-MAY-2007 14:20

Report Date: 05/22/2007

Matrix: SOIL % Solids: 77.1

Lab ID: SA2140-4

Client ID: DP25S 4.5-6D

SDG: CTO056-3 Extracted by: KM

Extraction Method: SW846 3550

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38781

Units: ug/Kgdrywt

CAS#	Compound	Flags	Results	DF	Doz		
91-20-3	Naphthalene	- 2095	33		PQL	Adj.PQL	
91-57-6	2-Methylnaphthalene	L		1.0	20	26	3
90-12-0	1-Methylnaphthalene	т.	230	1.0	20	26	9
208-96-8	Acenaphthylene	_	180	1.0	20	26	12
83-32-9	Acenaphthene	I	8	1.0	20	26	3
86-73-7	Fluorene	I.	12	1.0	20	26	8
85-01-8		I	6	1.0	20	26	4
	Phenanthrene	I	4	1.0	20	26	3
120-12-7	Anthracene	ע	5	1.0	20	26	5
206-44-0	Fluoranthene	I	21	1.0	20	26	4
129-00-0	Pyrene	I	16.	1.0	20	/ 26	
56-55-3	Benzo(a)anthracene	I	19	1.0	20		4
218-01-9	Chrysene	ı	20	1.0		26	4
205-99-2	Benzo(b)fluoranthene	-	26		20	. 26	4
207-08-9	Benzo(k)fluoranthene	I		1.0	20	26	4
50-32-8	Benzo(a) pyrene	ï	14	1.0	20	26	4
193-39-5	Indeno(1,2,3-cd)pyrene		22	1.0	20	26	4
191-24-2	Benzo(g,h,i)perylene	Ι	22	1.0	20	26	6
53-70-3		I	11	1.0	20	26	4
7297-45-2	Dibenzo (a, h) anthracene	ਧ	5	1.0	20	26	5
	2-Methylnaphthalene-d10		92%				
81103-79-9	Fluorene-d10		69%			•	
1718-52-1	Pyrene-d10		73%				

Page 01 of 01 U7976.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07 Extraction Date: 05/10/07

Analysis Date: 21-MAY-2007 14:32

Report Date: 05/22/2007

Matrix: SOIL % Solids: 77.1

Lab ID: SA2140-4DL Client ID: DP25S 4.5-6D

SDG: CTO056-3 Extracted by: KM

Extraction Method: SW846 3550

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38781

Units: ug/Kgdrywt

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	λd-i MDT
91-20-3	Naphthalene	I	. 32	2.0	20	52	7 7
91-57-6	2-Methylnaphthalene		250	2.0	20	52	
90-12-0	1-Methylnaphthalene		200	2.0	20	52 52	19
208-96-8	Acenaphthylene	I	12	2.0	20		24
83-32-9	Acenaphthene	Ū	15			52	6
86-73-7	Fluorene	I		2.0	20	52	15
85-01-8	Phenanthrene	Ū	8	2.0	20	52	8
120-12-7	Anthracene	_	7	2.0	20	52	7
206-44-0	· · ·	Ū	. 9	2.0	20	52	9
-	Fluoranthene	I	21	2.0	20	52	9
129-00-0	Pyrene	I	16	2.0	20	52	8
56-55-3	Benzo(a)anthracene	I	21	2.0	20	52	8
218-01-9	Chrysene	I	19	2.0	20	52	8
205-99-2	Benzo(b)fluoranthene	I	30	2.0	20	52	8
207-08-9	Benzo(k)fluoranthene	I	12	2.0	20	52	8
50-32-8	Benzo(a)pyrene	I	23	2.0	20	52	8
193-39-5	Indeno (1,2,3-cd) pyrene	I	12	2.0	20	52	12
191-24-2	Benzo(g,h,i)perylene	I	9	2.0	20	52	- 8
53-70-3	Dibenzo(a,h)anthracene	υ	10	2.0	20	52	10
7297-45-2	2-Methylnaphthalene-d10		86%	2.0	20	. 52	10
81103-79-9	Fluorene-d10		69%				
1718-52-1	Pyrene-d10	•	67%			÷	
			07%				

Page 01 of 01 U7989.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07
Received Date: 05/08/07
Extraction Date: 05/10/07

Analysis Date: 21-MAY-2007 13:46

Report Date: 05/22/2007

Matrix: SOIL % Solids: 93.9

Lab ID: SA2140-3DL Client ID: DP26S 6-8D

SDG: CTO056-3 Extracted by: KM

Extraction Method: SW846 3550

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38781

Units: ug/Kgdrywt

CAS#	Compound	Flags	Results	DF	PQL	Adi POT	Adj.MDL
91-20-3	Naphthalene		3500	20	20	420	55
91-57-6	2-Methylnaphthalene	L	15000	20	20	420	160
90-12-0	1-Methylnaphthalene	L	9200	20	20	420	200
208-96-8	Acenaphthylene	σ	47	20	20	420	47
83-32-9	Acenaphthene	I	360	20	20	420	120
86-73-7	Fluorene	I	160	20	20	420	66
85-01-8	Phenanthrene	υ σ	. 55	20	20	420	55
120-12-7	Anthracene	σ	77	20	20	420	55 77
206-44-0	Fluoranthene	Ū	74	20	20	420	
129-00-0	Pyrene	. 0	68	20	20	420	74 68
56-55-3	Benzo(a)anthracene	σ	64	20	20	420	64
218-01-9	Chrysene	. <b>U</b>	62	20	20	420	_
205-99-2	Benzo(b) fluoranthene	I	79	20	20	420	62
207-08-9	Benzo(k) fluoranthene	σ	64	20	20	420	66
50-32-8	Benzo(a)pyrene	Ū	64	20	20	420	64
193-39-5	Indeno(1,2,3-cd)pyrene	I	340	20	20		64
191-24-2	Benzo(g,h,i)perylene	I	210	20		420	96
53-70-3	Dibenzo (a,h) anthracene	ī	130	20	20	420	66
7297-45-2	2-Methylnaphthalene-d10	<u>.</u>	D	20	20	420	81
81103-79-9	Fluorene-d10						
1718-52-1	Pyrene-d10		D				
	-1-0::0 020		D				

Page 01 of 01 U7988.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07 Extraction Date: 05/10/07

Analysis Date: 21-MAY-2007 18:23

Report Date: 05/22/2007

Matrix: SOIL . % Solids: 93.9

Lab ID: SA2140-3DL2 Client ID: DP26S 6-8D

SDG: CTO056-3 Extracted by: KM

Extraction Method: SW846 3550

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38781

Units: ug/Kgdrywt

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Add MOT
91-20-3	Naphthalene	J	4100	100	20	2100	280
91-57-6	2-Methylnaphthalene		18000	100	20	2100	780
90-12-0	1-Methylnaphthalene		10000	100	20	2100	980
208-96-8	Acenaphthylene	σ	230	100	20	2100	230
83-32-9	Acenaphthene	σ	630	100	20	2100	630
86-73-7	Fluorene	σ	330	100	20	2100	330
85-01-8	Phenanthrene	σ	280	100	20	2100	
120-12-7	Anthracene	ਧ	380	100	20	2100	280
206-44-0	Fluoranthene	ਧ	370	100	20	2100	380
129-00-0	Pyrene	ס	340	100	20	2100	370
56-55-3	Benzo(a) anthracene	σ	320	100	20	2100	340
218-01-9	Chrysene	σ	310	100	20		320
205-99-2	Benzo(b) fluoranthene	ਹ ਹ	330	100	20	2100 2100	310
207-08-9	Benzo(k)fluoranthene	U	320	100	20		330
50-32-8	Benzo(a)pyrene	υ	320	100	20	2100	320
193-39-5	Indeno (1,2,3-cd) pyrene	υ.	480	100		2100	320
191-24-2	Benzo(g,h,i)perylene	ט ד	330	100	20	2100	480
53-70-3	Dibenzo (a, h) anthracene	บ	400	100	20	2100	330
7297-45-2	2-Methylnaphthalene-d10	Ŭ	- D	100	20	2100	400
81103-79-9	Fluorene-d10						
1718-52-1	Pyrene-d10		D D				
	, <del></del>		Б				

Page 01 of 01 U7994.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07
Received Date: 05/08/07
Extraction Date: 05/10/07

Analysis Date: 18-MAY-2007 15:06

Report Date: 05/22/2007

Matrix: SOIL % Solids: 84.5

Lab ID: SA2140-5 Client ID: DP33S 5-6D

SDG: CTO056-3
Extracted by: KM

Extraction Method: SW846 3550

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38781

Units: ug/Kgdrywt

CAS#	Compound	Flags	Results	DF	PQL	Adi POL	Adj.MDL
91-20-3	Naphthalene	υ	3	1.0	20	24	3
91-57-6	2-Methylnaphthalene	σ	9	1.0	20	24	9
90-12-0	1-Methylnaphthalene	σ	11	1.0	20	24	11
208-96-8	Acenaphthylene	σ	. 3	1.0	20	24	3
83-32-9	Acenaphthene	ד	7	1.0	20	24	3 7
86-73-7	Fluorene	σ	4	1.0	20	24	4
85-01-8	Phenanthrene	ΰ	3	1.0	20	24	3
120-12-7	Anthracene	σ	4	1.0	20	24	4
206-44-0	Fluoranthene	Ū	4	1.0	20	24	4
129-00-0	Pyrene	I	4	1.0	20	24	4
56-55-3	Benzo(a)anthracene	σ	4	1.0	20	24	4
218-01-9	Chrysene	υ	3	1.0	20	24	3
205-99-2	Benzo(b)fluoranthene	บ	4	1.0	20	24	4
207-08-9	Benzo(k)fluoranthene	σ	4	1.0	20	24	4
50-32-8	Benzo(a)pyrene	ט	4	1.0	20	24	4
193-39-5	Indeno(1,2,3-cd)pyrene	σ	5	1.0	20	24	5
191-24-2	Benzo(g,h,i)perylene	σ	4	1.0	20	24	4
53-70-3	Dibenzo(a,h)anthracene	ט	4	1.0	20	24	4
7297-45-2	2-Methylnaphthalene-d10		57%	2.0	20	24	4
81103-79-9	Fluorene-d10		68%				
1718-52-1	Pyrene-d10	•	87%				
	-		0,1				

Page 01 of 01 U7977.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07 Extraction Date: 05/10/07

Analysis Date: 23-MAY-2007 14:48

Report Date: 05/30/2007

Matrix: SOIL % Solids: 94.8

Lab ID: SA2140-2 Client ID: DP05S 5-6D

SDG: CT0056-3 Extracted by: KM

Extraction Method: SW846 3550

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38752

Units: mg/Kgdrywt

CAS# Compound Flags Results  $\mathtt{DF}$ PQL Adj.PQL Adj.MDL Petroleum Range Organics v 28 1.0 20 21 6.0 n-Triacontane-D62 106% O-Terphenyl 102%

Page 01 of 01 CAE2138.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07 Extraction Date: 05/10/07

Analysis Date: 25-MAY-2007 11:37

Report Date: 05/30/2007

Matrix: SOIL % Solids: 75.9

Lab ID: SA2140-1 Client ID: DP14S 4-5D

SDG: CTO056-3 Extracted by: KM

Extraction Method: SW846 3550

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38752

Units: mg/Kgdrywt

CAS# Compound Flags Results  $_{
m DF}$ PQL Adj.PQL Adj.MDL 1.0 Petroleum Range Organics v 32 20 26 7.5 n-Triacontane-D62 111% O-Terphenyl J116%

Page 01 of 01 CAE1157.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07 Extraction Date: 05/10/07

Analysis Date: 22-MAY-2007 06:07

Report Date: 05/30/2007

Matrix: SOIL % Solids: 77.1

Lab ID: SA2140-4

Client ID: DP25S 4.5-6D

SDG: CTO056-3 Extracted by: KM

Extraction Method: SW846 3550

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38752

Units: mg/Kgdrywt

CAS# Compound Flags Results DF PQL Adj.PQL Adj.MDL Petroleum Range Organics V 120 1.0 20 26 7.4 n-Triacontane-D62 110% O-Terphenyl 102%

Page 01 of 01 CAE2116.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07
Received Date: 05/08/07
Extraction Date: 05/10/07

Analysis Date: 22-MAY-2007 16:59

Report Date: 05/30/2007

Matrix: SOIL % Solids: 93.9

Lab ID: SA2140-3DL Client ID: DP26S 6-8D

SDG: CTO056-3 Extracted by: KM

Extraction Method: SW846 3550

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38752

Units: mg/Kgdrywt

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adi.MDL
	Petroleum Range Organics	V	4000	100	20	2100	600
	n-Triacontane-D62		D				
	O-Terphenyl		D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07 Extraction Date: 05/10/07

Analysis Date: 22-MAY-2007 07:22

Report Date: 05/30/2007

Matrix: SOIL % Solids: 84.5 Lab ID: SA2140-5

Client ID: DP33S 5-6D

SDG: CT0056-3 Extracted by: KM

Extraction Method: SW846 3550

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38752

Units: mg/Kgdrywt

CAS# Compound

Petroleum Range Organics

n-Triacontane-D62 O-Terphenyl

Flags ΙV

Results DF 13 1.0

1118

1048

PQL Adj.PQL Adj.MDL 6.7

20 24

Page 01 of 01 CAE2117.d



# INTERNAL CORRESPONDENCE

TO:

MR. G. WALKER

DATE:

**JULY 20, 2007** 

FROM:

**EDWARD SEDLMYER** 

COPIES:

**DV FILE** 

SUBJECT:

ORGANIC DATA VALIDATION- VOA/PAH/TPH/LEAD

CTO 0056, NAS PENSACOLA

**SDG CTO056-4** 

SAMPLES:

15/Aqueous/LEAD

DP14W 15-19	DP14W 26-30	D39W 10-14
PEN21GW1102	PEN21GW1202	PEN21GW1302
PEN21GW1502	PEN21GW1602	PEN21GW1702
PEN21GW1802	PEN21GW2102	PEN21GW2302
PEN21GW4102	PEN21GW4202	PEN21GW4403

6/Aqueous/VOC

DP14W 15-19 DP38W 26-30 DP14W 26-30 D39W 10-14 DP38W 18-22 TB 050707

5/Aqueous/PAH/TPH

DP14W 15-19 DP38W 26-30

DP14W 26-30 D39W 10-14 DP38W 18-22

#### **OVERVIEW**

The sample set for CTO 0056, NAS Pensacola, SDG CTO056-4 consists of eighteen (18) aqueous environmental samples. The samples were analyzed as listed above for BTEX volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), total petroleum hydrocarbon (TPH), and lead.

The samples were collected by TetraTech NUS on May 5, 6, and 7, 2007 and analyzed by Katahdin Analytical Services, Inc. All analyses were conducted in accordance with SW-846 Methods 8260B, 8270SIM, 6010B, and FDEP FL-PRO (TPH) analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
- Holding times
  - Initial/continuing calibrations
- Laboratory method blank results
- Detection Limits

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

#### Volatiles

No qualification of the data was necessary.

#### **PAHs**

Sample DP39W 10-14 required a 3X dilution for naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene concentrations greater than the linear calibration range of the instrument. The naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene results were reported from the 3X dilution. All other results are reported from the undiluted analysis.

The continuing calibration analyzed on 05/17/07 @11:13 had percent differences greater than 25% for dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene. No action was taken on this basis because the percent difference was less than 90%.

The continuing calibration analyzed on 05/18/07 @10:12 had percent differences greater than 25% for pyrene, benzo(a)anthracene, benzo(b)fluoranthene, and benzo(g,h,i)perylene. No action was taken on this basis because the percent difference was less than 90%.

#### <u>TPH</u>

No qualification of the data was necessary.

#### Lead

No qualification of the data was necessary.

#### **Additional Comments:**

Positive results less than the reporting limit (RL) were qualified as estimated "J", due to uncertainty near the detection limit.

#### **EXECUTIVE SUMMARY**

Laboratory Performance Issues: Continuing calibration noncompliances were noted for the PAH fraction.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the DoD QSM for Environmental Laboratories.

Tetra Tech NUS

Edward Sedlmyer Chemist/Data Validator

Joseph A. Samchuck

**Data Validation Quality Assurance Officer** 

#### Attachments:

Appendix A - Qualified Analytical Results

Appendix B – Results as Reported by the Laboratory

Appendix C – Support Documentation

## **APPENDIX A**

**QUALIFIED ANALYTICAL RESULTS** 

#### **Data Validation Qualifier Codes:**

A = Lab Blank Contamination

B = Field Blank Contamination

C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)

C01 = GC/MS Tuning Noncompliance

D = MS/MSD Recovery Noncompliance

E = LCS/LCSD Recovery Noncompliance

F = Lab Duplicate Imprecision

G = Field Duplicate Imprecision

H = Holding Time Exceedance

I = ICP Serial Dilution Noncompliance

J = GFAA PDS - GFAA MSA's r < 0.995 / ICP PDS Recovery Noncompliance

K = ICP Interference - includes ICS % R Noncompliance

L = Instrument Calibration Range Exceedance

M = Sample Preservation Noncompliance

N = Internal Standard Noncompliance

N01 = Internal Standard Recovery Noncompliance Dioxins

N02 = Recovery Standard Noncompliance Dioxins

N03 = Clean-up Standard Noncompliance Dioxins

O = Poor Instrument Performance (e.g. base-line drifting)

P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)

Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)

R = Surrogates Recovery Noncompliance

S = Pesticide/PCB Resolution

T = % Breakdown Noncompliance for DDT and Endrin

U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC

V = Non-linear calibrations; correlation coefficient r < 0.995</p>

W = EMPC result

X = Signal to noise response drop

Y = Percent solids <30%

Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00583

SDG: CTO056-4 MEDIA: WATER DATA FRACTION: OV

							Qual	Code						
							Val	Qual	Э	>	>	<b>&gt;</b>	<b>&gt;</b>	<b>-</b>
52							Lab	Qual	ח	)	<u></u>	n	>	>
DP38W 18-22	202	41-5						Result Qual	0.5	0.3	-	0.4	0.4	
DP38	5/5/2007	SA2141-5	Σ	NG/L	0.0									
nsample	samp_date	lab_id	qc_type	nits	Pct_Solids	DUP_OF:		Parameter	BENZENE	THYLBENZENE	A+P-XYLENES	D-XYLENE	OLUENE	OTAL XYLENES
c	ίŎ	<u>10</u>	6	3	<u>.                                    </u>		la	e de	<u> </u>	П П	2	0		
							al Q	Result Qual Qual Code	_	_		_	n	
							A di	<u>ल</u> ह्य	_			_	_	
9-30							La	ਤ ਜ਼	0.5	0.6	တ	0.4 L	0.4 L	6
DP14W 26-30	5/6/2007	SA2141-3	ΣN	UG/L	0.0			Res						
nsample	samp_date 5	lab_id S	qc_type N		Pct_Solids C	DUP_OF:		Parameter	BENZENE	ETHYLBENZENE	M+P-XYLENES	O-XYLENE	TOLUENE	TOTAL XYLENES
							Qual	Code						
							Val Qual	Qual	>	n		⊃	>	
							Lab	Qual	Þ	n		n	⊃	
DP14W 15-19	200	41-2						Result Qual Qual Code	0.5	0.3	က	0.4	0.4	က
DP14	5/6/2007	SA2141-2	Σ	NG/L	0.0		-							
nsample	samp_date	lab_id	qc_type		Pct_Solids	DUP_OF:		Parameter	BENZENE	ETHYLBENZENE	M+P-XYLENES	O-XYLENE	TOLUENE	TOTAL XYLENES

PROJ_NO: 00583

SDG: CTO056-4 MEDIA: WATER DATA FRACTION: OV

							Lab Val Qual	Result Qual Code	5 U U	3 U	о С	4 U U	4 U U	J U
TB 050707	4/25/2007	SA2141-18	ΣZ	UG/L	0.0			Resn	0.5	0.3		0.4	0.4	
nsample	samp_date	lab_id	qc_type	nnits	Pct_Solids	DUP_OF:		Parameter	BENZENE	ETHYLBENZENE	M+P-XYLENES	O-XYLENE	TOLUENE	TOTAL XYLENES
							Qual	Code					α.	
							Val	Qual	_				7	
4							Lab	Qual	>				_	
DP39W 10-14	5/6/2007	SA2141-4	ΣN	UG/L	0.0			Result Qual Qual Code	0.5	29	59	2	9.0	61
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:		Parameter	BENZENE	ETHYLBENZENE	M+P-XYLENES	O-XYLENE	TOLUENE	TOTAL XYLENES
							Qual	Code						
							Val Qual	Qual	>	כ	>	כ	>	>
c							Lab	Qual	>	כ	>	ס	D	ם
DP38W 26-30	200	141-1		,				Result Qual Qual Code	0.5	0.3	-	4.0	4.0	-
nsample DP38	samp_date 5/5/2007	lab_id SA2141-1	qc_type	units UG/L	Pct_Solids 0.0	DUP_OF:	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	Parameter	BENZENE	ETHYLBENZENE	M+P-XYLENES	O-XYLENE	TOLUENE	TOTAL XYLENES

PROJ_NO: 00583

SDG: CTO056-4 MEDIA: WATER DATA FRACTION: PAH

PROJ_NO: 00583

SDG: CT0056-4 MEDIA: WATER DATA FRACTION: PAH

Seamp_date         5/6/2007         samp_date	nsample	DP38W 26-30				nsample	DP39W 10-14	_			nsample	DP3	DP39W 10-14DL		
NA   NA   NA   NA   NA   NA   NA   NA	samp_date	5/5/2007				samp_date	5/6/2007				samp_date	2/9/5	2005		
NAME	lab_id	SA2141-1				. ap_id	SA2141-4				lab_id	SAZ	141-4DL		
DOAL         Units         UGAL         Units         UGAL         Units         UGAL           PerLSolids         0.0         PerLSolids         0.0         PerLSolids         0.0           PARTALENE         Lab         Val         Chall         Qual         Chall         Qual         Chall         Qual         Chall         Qual         Chall         Qual         Chall         Qual         Chall         Chall         Qual         Chall         Chall <td>qc_type</td> <td>NZ Z</td> <td></td> <td></td> <td></td> <td>qc_type</td> <td>ΣZ</td> <td></td> <td></td> <td></td> <td>qc_type</td> <td>ΣZ</td> <td></td> <td></td> <td></td>	qc_type	NZ Z				qc_type	ΣZ				qc_type	ΣZ			
Pot Solids         OLD OF:           Parameter         Lab         Val         Qual         Code         U. D. D. OF:         DUP_OF:           Parameter         Lab         Val         Qual         Code         U. D. O.         DUP_OF:         DUP_OF:           Parameter         Lab         Val         Qual         Code         U. D. O.         Dup_OF:         DUP_OF:           Parameter         2         ACENAPHTHAENE         Qual	units	NG/L				units	NG/L				units	UG/I			
Perameter         Result         Lab         Val         Quel         Couls         Lab         Val         Quel         Lab         Parameter         Lab         Val         Quel         Couls         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U	Pct_Solids	0.0				Pct_Solids	0.0				Pct_Solids	0.0			
Parameter         Result Augustus         Lab Lab Augustus         Vail Oual Oual Oual Oual Oual Oual Oual Oua	DUP_OF:					DUP_OF:					DUP_OF:				
NAPHTHALENE         2         ACENAPHTHENE         0.2         1-METHYLNAENE         1-	Parameter	Result	·	Val	Qual	Parameter	Result	Lab		Qual 20de	Parameter		Result Qu	<b>—</b>	al Qual
ACENAPHTHALENE   2	-METHYLNAPHTHALENE	2	_			ACENAPHTHENE	0.2		-		1-METHYLNAPHTHALENE		13	-	-
THENE         0.07         U         U         ANTHRACENE         0.06         U         U         U         D         LAPHTHALENE         Cob         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         D         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         <	2-METHYLNAPHTHALENE	2				ACENAPHTHYLENE	0.06	b	)		2-METHYLNAPHTHALENE		2 .		
THYLENE         0.06         U         U         D         BENZO(A)ANTHRACENE         0.07         U           ENE         0.06         U         U         U         BENZO(A)PYRENE         0.05         U           ANTHRACENE         0.07         U         U         BENZO(B)FLUORANTHENE         0.08         U         U           PYRENE         0.08         U         U         D         CHRYSENE         0.07         U           H.I.)PERYLENE         0.08         U         U         D         CHRYSENE         0.07         U           IE         0.07         U         U         U         DIBENZO(A,H)ANTHRACENE         0.07         U           IE         0.07         U         U         U         DIBENZO(A,H)ANTHRACENE         0.07         U           IAHNATHRACENE         0.06         U         U         U         DIBENZO(A,H)ANTHRACENE         0.07         U           IAHNENE         0.07         U         U         U         DIPROPARATHENE         0.05         U         U           I.A. U         U         U         U         U         DIPRENANTHRACENE         0.05         U         U         DIPRENANTHRACENE	ACENAPHTHENE	0.07	<b>&gt;</b>	>		ANTHRACENE	90.0	>	>		NAPHTHALENE		7		
ENLE         0.06         U         U         BENZO(A)PYRENE         0.05         U         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O	ACENAPHTHYLENE	90.0	<b>D</b>	_		BENZO(A)ANTHRACENE	0.07	n	Э						
ANTHRACENE         0.07         U         U         BENZO(B)FLUORANTHENE         0.08         U         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O	ANTHRACENE	90:0	⊃	⊃		BENZO(A)PYRENE	0.05	n	n						
PYRENE         0.05         U         U         BENZO(G,H,I)PERYLENE         0.09         U         I           FLUORANTHENE         0.08         U         U         BENZO(K)FLUORANTHENE         0.1         U           FLUORANTHENE         0.08         U         U         U         CHRYSENE         0.07         U           FLUORANTHENE         0.07         U         U         DIBENZO(A,H)ANTHRACENE         0.1         U           IRENORMATHRACENE         0.07         U         U         CHUORANTHENE         0.05         U           ITHENE         0.07         U         U         U         PHENANTHRENE         0.05         U           ILENE         0.09         U         U         U         PHENANTHRENE         0.05         U           HRENE         0.09         U         U         U         PHENANTHRENE         0.05         U           HRENE         0.09         U         U         U         PHENANTHRENE         0.05         U	3ENZO(A)ANTHRACENE	0.07	ב כ			BENZO(B)FLUORANTHENE	80.08	n	n						
FLUORANTHENE         0.08         U         U         BENZO(K)FLUORANTHENE         0.1         U         DIBENZO(A,H)ANTHRACENE         0.07         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         DYRENE         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U<	SENZO(A)PYRENE	0.05	<b>)</b>	>		BENZO(G,H,I)PERYLENE	60.0	⊃	)						
H.JPERYLENE         0.08         U         U         OHRYSENE         0.07         U           FLUORANTHENE         0.1         U         U         DIBENZO(A,H)ANTHRACENE         0.1         U           IE         0.07         U         U         FLUORANTHENE         0.3         D           A.H)ANTHRACENE         0.06         U         U         INDENO(1,2,3-CD)PYRENE         0.3         D           IE         0.07         U         U         D         PHENANTHRENE         0.05         U           I.ENS         0.09         U         U         D         PYRENE         0.05         U           HRENE         0.06         U         U         U         D         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O         O	BENZO(B)FLUORANTHENE	0.08	<b> </b>	>		BENZO(K)FLUORANTHENE	0.1	n	Λ						
FLUORANTHENE         0.1         U         U         DIBENZO(A,H)ANTHRACENE         0.1         U         DIBENZO(A,H)ANTHRACENE         0.1         U         U         DIBENZO(A,H)ANTHRACENE         0.5         U         U         DIBENZO(A,H)ANTHRACENE         0.5         U         U         DIBENZO(A,H)ANTHRACENE         0.5         U         U         U         U         DIBENZO(A,H)ANTHRACENE         0.3         DIBENZO(A,H)ANTHRACENE         0.3         DIBENZO(A,H)ANTHRACENE         0.0         U         U         U         U         U         U         U         U         U         U         DIA         U         DIA         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U         U <t< td=""><td>3ENZO(G,H,I)PERYLENE</td><td>0.08</td><td><b>&gt;</b></td><td><b>-</b></td><td></td><td>CHRYSENE</td><td>0.07</td><td>ń</td><td>ר</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	3ENZO(G,H,I)PERYLENE	0.08	<b>&gt;</b>	<b>-</b>		CHRYSENE	0.07	ń	ר						
IE         0.07         U         U         ILUORANTHENE         0.5         O.3         O.	BENZO(K)FLUORANTHENE	0.1	>	<b>-</b>	-	DIBENZO(A,H)ANTHRACENE	0.1	n	ר						
A,H)ANTHRACENE         0.1         U         U         U         ILLUORENE         0.3         PRINTERIA         O.1         U         O.2         U         U         U         U         DENONO(1,2,3-CD)PYRENE         O.1         U         U         U         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D	CHRYSENE	20.0	_	⊃		FLUORANTHENE	0.5								
THENE         0.06         U         U         U         INDENO(1,2,3-CD)PYRENE         0.1         U         U         DHENANTHRENE         0.1         U         O.05         U         PYRENE         0.05         U         O.03         U         O.03         U         O.03         O.	DIBENZO(A,H)ANTHRACENE	0.1		<b>D</b>		FLUORENE	0.3								
IE         0.07         U         U         DHENANTHRENE         0.05         U           ,2,3-CD)PYRENE         0.1         U         U         PYRENE         0.3         U           LENE         0.05         U         U         U         U         U	FLUORANTHENE	90.0	⊃	)		INDENO(1,2,3-CD)PYRENE	0.1	∍	כ						
2.3-CD)PYRENE         0.1         U         U         PYRENE           LENE         0.9         U         U         U           HRENE         0.06         U         U         U	FLUORENE	20.0	→	_		PHENANTHRENE	0.05	Ú	)						
LENE 0.05 U 0.05 U 0.06 U	INDENO(1,2,3-CD)PYRENE	0.1	_	n		PYRENE	0.3								
HRENE 0.05 U 0.06 U	NAPHTHALENE	6.0													
U 90.0	PHENANTHRENE	0.05	<b>&gt;</b>	⊃											
	PYRENE	90.0	n	n											

PROJ_NO: 00583

SDG: CT0056-4 MEDIA: WATER DATA FRACTION: M

nsample	DP14W 15-19	nsample	DP14W 26-30	nsample	DP39W 10-14	
samp_date	5/6/2007	samp_date	5/6/2007	samp_date	5/6/2007	
lab_id	SA2141-002	lab_id	SA2141-003	lab_id	SA2141-004	
qc_type	MN	qc_type	NZ	qc_type	ΣZ	
units	UG/L	units	UG/L	units	UG/L	
Pct Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0	
DUP OF:		DUP_OF:		DUP_OF:		

	Parameter	LEAD
	Qual	
-	Val Qual	
	Lab Qual	
	Result	34.4
	Parameter	LEAD
	Qual	
	Val Qual	
	Lab Qual	-
	Result	3.7

Parameter

LEAD

PROJ_NO: 00583

SDG: CT0056-4 MEDIA: WATER DATA FRACTION: M

nsample	PEN21GW1102	nsample	PEN21GW1202	nsample	PEN21GW1302	
samp_date	5/7/2007	samp_date	5/7/2007	samp_date	5/7/2007	•
lab_id	SA2141-009	lab_id	SA2141-008	lab_id	SA2141-013	
qc_type	ΣZ	qc_type	ΣZ	qc_type	ΣN	
units	UG/L	nnits	NG/L	units	UG/L	
Pct Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0	
DUP OF:		DUP_OF:		DUP_OF:		

	lab_id SA2141-008 lab_id	NM qc_type NM qc_type NM log/L	Pct_Solids 0.0 Pct_Solids	DUP_OF:	LabValQualCodeParameterResultQualCodeCodeParameterAualQualCode	158 LEAD 158
5/7/2007	SA2141-009	WN I	0.0		Lab Result Qual	910
5/7/2007	5 0	2 -	Ó ဝ		Parameter	

LEAD

00583 PROJ_NO:

SDG: CT0056-4 MEDIA: WATER DATA FRACTION: M

PEN21GW1602 nsample 5/7/2007 samp_date 5/7/2007 lab_id NM qc_type UG/L units 0.0 Pct_Solids	PEN21GW1502         nsample           samp_date         FNZ1GW1602         nsample           5/7/2007         samp_date         samp_date           5/7/2007         samp_date         samp_date           SA2141-007         lab_id         lab_id           NM         qc_type         qc_type           UG/L         units         loo           DUP_OF:         DUP_OF:         DUP_OF:						COPPERCO	
5/7/2007         samp_date         5/7/2007         samp_date         5           SA2141-007         lab_id         lab_id         \$           NM         qc_type         NM         qc_type         P           UG/L         units         UG/L         units         U           0.0         Pct_Solids         0.0         Pct_Solids         C           DUP_OF:         DUP_OF:         DUP_OF:         C	5/7/2007         samp_date         5/7/2007         samp_date         5           SA2141-007         lab_id         SA2141-012         lab_id         S           NM         qc_type         NM         qc_type         N           UG/L         units         UG/L         units         U           0.0         Pct_Solids         0.0         DUP_OF:         DUP_OF:	ample	PEN21GW1502	nsample	PEN21GW1602	nsample	PENZIGW1/0Z	
SA2141-007         lab_id         SA2141-012         lab_id         \$           NM         qc_type         NM         qc_type         P           UG/L         units         UG/L         units         U           0.0         Pct_Solids         0.0         Pct_Solids         C           DUP_OF:         DUP_OF:         DUP_OF:         DUP_OF:	SA2141-007         lab_id         SA2141-012         lab_id         S           NM         qc_type         NM         qc_type         P           UG/L         units         UG/L         units         U           0.0         Pct_Solids         0.0         Pct_Solids         0           DUP_OF:         DUP_OF:         DUP_OF:         DUP_OF:	mp_date	5/7/2007	samp_date	5/7/2007	samp_date	5/7/2007	
NM         qc_type         N           UG/L         units         UG/L         units         (           0.0         Pct_Solids         0.0         Pct_Solids         (           DUP_OF:         DUP_OF:         DUP_OF:         (	NM         qc_type         N           UG/L         units         UG/L         units           0.0         Pct_Solids         0.0         Pct_Solids         0           DUP_OF:	pi c	SA2141-007	lab_id	SA2141-012	lab_id	SA2141-016	
UG/L         units         UG/L         units         I           0.0         Pct_Solids         0.0         Pct_Solids         0           DUP_OF:         DUP_OF:         DUP_OF:         DUP_OF:	UG/L         units         UG/L         units           0.0         Pct_Solids         0.0         Pct_Solids         0           DUP_OF:         DUP	_type	NA	qc_type	ΣZ	qc_type	WZ	
0.0 Pct_Solids 0.0 Pct_Solids OUP_OF:	0.0 Pct_Solids 0.0 Pct_Solids DUP_OF:	iits	UG/L	units	UG/L	units	NG/L	
DUP_OF:	DUP_OF:	ot Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0	
		UP_OF:		DUP_OF:		DUP_OF:		

nsamble	PEN	PEN21GW1502		nsample	PEN21GW1602	nsample	PEN21GW1702	
samp date	1/1/9	5/7/2007		samp_date	5/7/2007	samp_date	5/7/2007	
lab_id	SAS	SA2141-007		lab_id	SA2141-012	lab_id	SA2141-016	
qc_type	Z			dc_type	ΣZ	dc_type	NA	
units	NG/L	٦		nnits	UG/L	units	UG/L	
Pct Solids	0.0			Pct_Solids	0.0	Pct_Solids	0:0	
DUP_OF:				DUP_OF:		DUP_OF:	And the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	ı
Pare	Parameter	Lab Result Qual	Lab Val Qual Result Qual Qual	Parameter	eter Result Qual Code	Parameter	Result Qual Qual Code	- o
LEAD		34	_	LEAD	27.9	LEAD	98.2	

00583 PROJ_NO:

SDG: CTO056-4 MEDIA: WATER DATA FRACTION: M

nsample	PEN21GW1802	nsample	PEN21GW2102	nsample	PEN21GW2302
samp_date	5/7/2007	samp_date	5/7/2007	samp_date	5/7/2007
lab_id	SA2141-014	lab_id	SA2141-010	lab_id	SA2141-011
dc_type	MZ	- qc_type	ΣZ	qc_type	ΣZ
units	UG/L	units	NG/L	units	UG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter

Result Qual Qual Code

Parameter

LEAD

LEAD

9.79

			Qual	Code	
			Val	Cula	
			Lab	Cua	
NM UG/L			Lab Val Qual	Hesult	120
qc_type NM units UG/L	Pct_Solids 0.0	DUP_OF:	-	Parameter	LEAD
			Qual	Code	
			Val	Qual	
			Lab	Qua	
<del>-</del> -			Lab Val Qual	Result	71.7

PROJ_NO: 00583

SDG: CTO056-4 MEDIA: WATER DATA FRACTION: M

PEN21GW4403	5/7/2007	SA2141-006	WN	UG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
PEN21GW4202	5/7/2007	SA2141-015	ΣZ	UG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
PEN21GW4102	5/7/2007	SA2141-017	ΣZ	UG/L	0.0	
nsample	samp_date	lab_id	qc_type	nnits	Pct_Solids	DUP_OF:

Result Qual Qual Code

Parameter

Result Qual Qual Code

Parameter

Val Qual Qual Code

Lab Result Qual

Parameter

LEAD

LEAD

20.9

LEAD

9.1

7.9

## **APPENDIX B**

RESULTS AS REPORTED BY THE LABORATORY

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07

Extraction Date:

Analysis Date: 18-MAY-2007 13:15

Report Date: 05/21/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-2 Client ID: DP14W 15-19

SDG: CTO056-4 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39068

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
	m+p-Xylenes		3	1.0	2	2	1.0
95-47-6	o-Xylene	ΰ	0.4	1.0	1	1	0.4
1330-20-7	Xylenes (total)		3	1.0	3	3	1
1868-53-7	Dibromofluoromethane		83%				
17060-07-0	1,2-Dichloroethane-D4		78%				
2037-26-5	Toluene-D8		86%				
460-00-4	P-Bromofluorobenzene		87%				
	Page	01 Of 01	S4548 D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07

Extraction Date:

Analysis Date: 18-MAY-2007 15:19

Report Date: 05/21/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-3

Client ID: DP14W 26-30

SDG: CTO056-4 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39068

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	I	0.6	1.0	1	1	0.3
	m+p-Xylenes	•	9	1.0	2	2	1.0
95-47-6	o-Xylene	σ	0.4	1.0	1	1	0.4
1330-20-7	Xylenes (total)		9	1.0	3	3	1
1868-53-7	Dibromofluoromethane		86%				
17060-07-0	1,2-Dichloroethane-D4		80%				
2037-26-5	Toluene-D8		87%				
460-00-4	P-Bromofluorobenzene		87%				
	Page	01 of 01	S4552.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/05/07 Received Date: 05/08/07

Extraction Date:

Analysis Date: 18-MAY-2007 13:46

Report Date: 05/21/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-5

Client ID: DP38W 18-22

SDG: CTO056-4 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39068

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
71-43-2	Benzene	σ	0.5	1.0	. 1	1	0.5
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
	m+p-Xylenes	σ	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	σ	0.4	1.0	1	1	0.4
1330-20-7	Xylenes (total)	σ	1	1.0	3	3	1
1868-53-7	Dibromofluoromethane		83%				
17060-07-0	1,2-Dichloroethane-D4		80%				
2037-26-5	Toluene-D8		86%				
460-00-4	P-Bromofluorobenzene		85%				
	Page	01 of 01	S4549.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/05/07 Received Date: 05/08/07

Extraction Date:

Analysis Date: 18-MAY-2007 14:17

Report Date: 05/21/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-1

Client ID: DP38W 26-30

SDG: CTO056-4 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39068

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQI	Adj.MDL
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
71-43-2	Benzene	, <b>T</b>	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
	m+p-Xylenes	σ	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	σ .	0.4	1.0	. 1	1	0.4
1330-20-7	Xylenes (total)	σ	1	1.0	3	3	1
1868-53-7	Dibromofluoromethane		86%				
17060-07-0	1,2-Dichloroethane-D4		81%	•			
2037-26-5	Toluene-D8	•	85%				
460-00-4	P-Bromofluorobenzene		86%				
	Page	01 of 01	S4550.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07

Extraction Date:

Analysis Date: 18-MAY-2007 14:48

Report Date: 05/21/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-4 Client ID: DP39W 10-14

SDG: CTO056-4 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39068

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
108-88-3	Toluene	I	0.6	1.0	1	1	0.4
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene		29	1.0	1	1	0.3
	m+p-Xylenes		59	1.0	2	2	1.0
95-47-6	o-Xylene		2	1.0	1 '	1	0.4
1330-20-7	Xylenes (total)		61	1.0	3	3	1
1868-53-7	Dibromofluoromethane		87%				
17060-07-0	1,2-Dichloroethane-D4		82%				
2037-26-5	Toluene-D8		888				
460-00-4	P-Bromofluorobenzene		888				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 04/25/07 Received Date: 05/08/07

Extraction Date:

Analysis Date: 18-MAY-2007 10:10

Report Date: 05/21/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-18 Client ID: TB 050707

SDG: CTO056-4 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39068

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
71-43-2	Benzene	<b>U</b> -	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
	m+p-Xylenes	σ	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	σ	0.4	1.0	1	1	0.4
1330-20-7	Xylenes (total)	σ	1	1.0	3	3	1
1868-53-7	Dibromofluoromethane		848				
17060-07-0	1,2-Dichloroethane-D4		81%				
2037-26-5	Toluene-D8		878				
460-00-4	P-Bromofluorobenzene		88%				
	Page	01 of 01	S4542.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07
Received Date: 05/08/07
Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 13:25

Report Date: 05/18/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-2

Client ID: DP14W 15-19

SDG: CTO056-4 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL A	dj.MDL
91-20-3	Naphthalene	σ	0.1	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	σ	0.07	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	σ	0.2	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene	σ .	0.07	1.0	0.2	0.2	0.07
86-73-7	Fluorene	σ	0.07	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	σ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	σ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	· U	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	σ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	ਹ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	σ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		62%				
81103-79-9	Fluorene-d10		60%				
1718-52-1	Pyrene-d10		97%				
	•						

Page 01 of 01 R4229 D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07 Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 14:07

Report Date: 05/18/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-3

Client ID: DP14W 26-30

SDG: CTO056-4 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		0.2	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene		0.3	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	σ	0.2	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	υ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene	υ	0.07	1.0	0.2	0.2	0.07
86-73-7	Fluorene	U	0.07	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	I	0.2	1.0	0.2	0.2	0.05
120-12-7	Anthracene	υ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	I	0.2	1.0	0.2	0.2	0.06
129-00-0	Pyrene	υ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	. σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	σ.	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	ד	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	ซ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		86%				
81103-79-9	Fluorene-d10		80%	•			
1718-52-1	Pyrene-d10		948				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/05/07 Received Date: 05/08/07 Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 15:32

Report Date: 05/18/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-5 Client ID: DP38W 18-22

SDG: CTO056-4 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
91-20-3	Naphthalene	-	0.3	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene		0.8	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		0.8	1.0	0.2	0.2	0.1
208-96-8	Acenaphthylene	. σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene	σ	0.07	1.0	0.2	0.2	0.07
86-73-7	Fluorene	ד	0.07	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	σ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	σ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b) fluoranthene	υ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k) fluoranthene	σ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.10	1.0	0.2	0.2	0.10
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	σ΄	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		86%				
81103-79-9	Fluorene-d10		77%				
1718-52-1	Pyrene-d10		1128				
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Page 01 of 01 R4232.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/05/07
Received Date: 05/08/07
Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 12:42

Report Date: 05/18/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-1

Client ID: DP38W 26-30

SDG: CTO056-4 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

X.								
CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL	
91-20-3	Naphthalene		0.9	1.0	0.2	0.2	0.1	
91-57-6	2-Methylnaphthalene		2	1.0	0.2	0.2	0.07	
90-12-0	1-Methylnaphthalene		. 2	1.0	0.2	0.2	0.1	
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06	
83-32-9	Acenaphthene	σ	0.07	1.0	0.2	0.2	0.07	
86-73-7	Fluorene	<b>U</b> .	0.07	1.0	0.2	0.2	0.07	
85-01-8	Phenanthrene	σ	0.05	1.0	0.2	0.2	0.05	
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06	
206-44-0	Fluoranthene	υ .	0.06	1.0	0.2	0.2	0.06	
129-00-0	Pyrene	σ	0.06	1.0	0.2	0.2	0.06	
56-55-3	Benzo (a) anthracene	ប	0.07	1.0	0.2	0.2	0.07	
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07	
205-99-2	Benzo(b) fluoranthene	σ	0.08	1.0	0.2	0.2	0.08	
207-08-9	Benzo(k) fluoranthene	<b>ט</b>	0.1	1.0	0.2	0.2	0.1	
50-32-8	Benzo(a)pyrene	ប	0.05	1.0	0.2	0.2	0.05	
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.10	1.0	0.2	0.2	0.10	
191-24-2	Benzo(g,h,i)perylene	σ	0.08	1.0	0.2	0.2	0.08	
53-70-3	Dibenzo(a,h)anthracene	σ	0.1	1.0	0.2	0.2	0.1	
7297-45-2	2-Methylnaphthalene-d10		66%					
81103-79-9	Fluorene-d10		70%					
1718-52-1	Pyrene-d10		96%					

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07 Extraction Date: 05/10/07

Extraction Date: 05/10/07

Analysis Date: 17-MAY-2007 14:50

Report Date: 05/18/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-4

Client ID: DP39W 10-14

SDG: CTO056-4 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene	T,	6	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	L	6	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	L	, 18	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		0.2	1.0	0.2	0.2	0.07
86-73-7	Fluorene		0.3	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	σ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene		0.5	1.0	0.2	0.2	0.06
129-00-0	Pyrene		0.3	1.0	0.2	0.2	0.06
56-55-3	Benzo(a) anthracene	ਧ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2.	Benzo(b) fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	σ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	σ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		67%				
81103-79-9	Fluorene-d10		64%				
1718-52-1	Pyrene-d10		88%				

Page 01 of 01 R4231.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07
Received Date: 05/08/07
Extraction Date: 05/10/07

Analysis Date: 18-MAY-2007 10:55

Report Date: 05/18/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-4DL Client ID: DP39W 10-14

SDG: CTO056-4 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38744

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		7	3.0	0.2	0.6	0.4
91-57-6	2-Methylnaphthalene		7	3.0	0.2	0.6	0.2
90-12-0	1-Methylnaphthalene		13	3.0	0.2	0.6	0.4
208-96-8	Acenaphthylene	ΰ	0.2	3.0	0.2	0.6	0.2
83-32-9	Acenaphthene	I	0.2	3.0	0.2	0.6	0.2
86-73-7	Fluorene	I	0.3	3.0	0.2	0.6	0.2
85-01-8	Phenanthrene	σ	0.2	3.0	0.2	0.6	0.2
120-12-7	Anthracene	σ	0.2	3.0	0.2	0.6	0.2
206-44-0	Fluoranthene		0.8	3.0	0.2	0.6	0.2
129-00-0	Pyrene	I	0.3	3.0	0.2	0.6	0.2
56-55-3	Benzo(a) anthracene	υ.	0.2	3.0	0.2	0.6	0.2
218-01-9	Chrysene	σ	0.2	3.0	0.2	0.6	0.2
205-99-2	Benzo(b) fluoranthene	σ	0.2	3.0	0.2	0.6	0.2
207-08-9	Benzo(k) fluoranthene	σ	0.3	3.0	0.2	0.6	0.3
50-32-8	Benzo(a)pyrene	σ	0.2	3.0	0.2	0.6	0.2
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.3	3.0	0.2	0.6	0.3
191-24-2	Benzo(g,h,i)perylene	σ	0.3	3.0	0.2	0.6	0.3
53-70-3	Dibenzo(a,h)anthracene	σ	0.4	3.0	0.2	0.6	0.4
7297-45-2	2-Methylnaphthalene-d10		66%				
81103-79-9	Fluorene-d10		76%				
1718-52-1	Pyrene-d10		80%				

Page 01 of 01 R4244.D

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Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07
Received Date: 05/08/07
Extraction Date: 05/09/07

Analysis Date: 11-MAY-2007 18:10

Report Date: 05/14/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-2

Client ID: DP14W 15-19

SDG: CTO056-4 Extracted by: KF

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38708

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics	σ	310	1.0	500	530	310
	n-Triacontane-D62		107%				
	O-Terphenyl		103%				

Page 01 of 01 CAE1023.d

#### report or Amarytical Results

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07 Extraction Date: 05/09/07

Analysis Date: 11-MAY-2007 19:26

Report Date: 05/14/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-3

Client ID: DP14W 26-30

SDG: CTO056-4 Extracted by: KF

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38708

Units: ug/L

CAS# Compound

,

01 of 01

Flags Results

DF 1.0

PQL Adj.PQL Adj.MDL 500 500 290

Petroleum Range Organics n-Triacontane-D62

O-Terphenyl

95% 90%

730

Page

CAE1024.d

#### KEDOLL OF WHATALTCUT KERNILR

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/05/07 Received Date: 05/08/07 Extraction Date: 05/09/07

Analysis Date: 11-MAY-2007 21:57

Report Date: 05/14/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-5

Client ID: DP38W 18-22

SDG: CTO056-4 Extracted by: KF

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38708

Units: ug/L

CAS# Compound

Petroleum Range Organics n-Triacontane-D62

O-Terphenyl

Flags ਹ

Results DF 1.0 280 948

92%

PQL Adj.PQL Adj.MDL 500 500

Page 01 of 01 CAE1026.d

#### keport or Anarytical kesuits

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/05/07 Received Date: 05/08/07 Extraction Date: 05/09/07

Analysis Date: 11-MAY-2007 16:56

Report Date: 05/14/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-1

Client ID: DP38W 26-30

SDG: CTO056-4 Extracted by: KF

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38708

Units: ug/L

CAS# Compound Flags Results DF PQL Adj.MDL Petroleum Range Organics U 280 1.0 500 500 280

n-Triacontane-D62

O-Terphenyl 105%

Page 01 of 01 CAE1022.d

#### vehorr or whathereat keantea

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/06/07 Received Date: 05/08/07 Extraction Date: 05/09/07

Analysis Date: 11-MAY-2007 20:41

Report Date: 05/14/2007

Matrix: WATER % Solids: NA

Lab ID: SA2141-4 Client ID: DP39W 10-14

SDG: CTO056-4 Extracted by: KF

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38708

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics		1300	1.0	500	530	310
	n-Triacontane-D62		93%				
	O-Terohenvl		91%				

Page 01 of 01 CAE1025.d

Lab Name: Katahdin Analytical Services

Client Field ID: DP14W 15-19

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-002

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	3.7	I		Р	1	5.0	0.91

Bottle ID: H

Lab Name: Katahdin Analytical Services

Client Field ID: DP14W 26-30

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-003

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	34.4			P	1	5.0	0.91

Bottle ID: G

Lab Name: Katahdin Analytical Services

Client Field ID: DP39W 10-14

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-004

Concentration Units : ug/L

CAS No.	Analyte	Concentration	С	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	48.1			P	1	5.0	0.91

Bottle ID: H

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW1102

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-009

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	416			P	1	5.0	0.91

Bottle ID: A

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW1202

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-008

Concentration Units: ug/L

CAS No.	Analyte	Concentration	С	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	99.9			P	1	5.0	0.91

Bottle ID: A

1

### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW1302

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-013

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	
7439-92-1	LEAD, TOTAL	158			Р	1	5.0	0.91

Bottle ID: A

1

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW1502

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-007

Concentration Units: ug/L

CAS No.	Analyte		C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	34.0	-		P	1	5.0	0.91

Bottle ID: A

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW1602

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-012

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	27.9		P	1	5.0	0.91

Bottle ID: A

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW1702

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-016

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	98.2			P	1	5.0	0.91

Bottle ID: A

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW1802

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-014

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	67.6			P	1	5.0	0.91

Bottle ID: A

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW2102

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-010

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted	IDL
7439-92-1	LEAD, TOTAL	71.7		-	P	1	5.0	. (	0.91

Bottle ID: A

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#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW2302

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-011

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	120			P	1	5.0	0.91

Bottle ID: A

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW4102

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-017

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	20.9			P	1	5.0	0.91

Bottle ID: A

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW4202

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-015

 $\textbf{Concentration Units:} \ ug/L$ 

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	9.1			P	1	5.0	0.91

Bottle ID: A

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW4403

Matrix: WATER

SDG Name:

CTO056-4

Percent Solids: 0.00

Lab Sample ID: SA2141-006

Concentration Units: ug/L

CAS No.	Analyte	Concentration	$\mathbf{C} \rightarrow \mathbf{Q}$	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	7.9		P	1	5.0	0.91

Bottle ID: A



#### **Tetra Tech NUS**

#### INTERNAL CORRESPONDENCE

TO:

**G. WALKER** 

DATE:

**JULY 13, 2007** 

FROM:

**MATTHEW D. KRAUS** 

COPIES:

**DV FILE** 

SUBJECT:

**INORGANIC DATA VALIDATION - LEAD** 

NAS PENSACOLA - CTO 056

**SDG - CTO056-5** 

**SAMPLES:** 

15/Aqueous/

PEN21GW0402 PEN21GW1902 PEN21GW2002 PEN21GW2002D PEN21GW2402 PEN21GW2502 PEN21GW4304 PEN21GW5302 PEN21GW5302D PEN21GW6701 PEN21GW6801 PEN21GW6901 PEN21GW7001 PEN21GW7101 PEN21GW7201

#### Overview

The sample set for NAS Pensacola, CTO 056, SDG CTO056-5, consists of fifteen aqueous environmental samples. Two field duplicate pairs (PEN21GW2002 / PEN21GW2002D) and (PEN21GW5302 / PEN21GW5302D) are included in this SDG.

All samples were collected by Tetra Tech NUS on May 8-9, 2007 and analyzed for total lead by Katahdin Analytical Services. Lead analyses were conducted using SW-846 method 6010B and Inductively Coupled Plasma – Atomic Emission Spectrometry (ICP-AES) methodology.

Data were evaluated based on the following parameters:

- * Data Completeness
- Holding Times
- Calibration Recoveries
  - Laboratory Method/Preparation Blank Analyses
  - Field Duplicate Precision
- Detection Limits
- * All quality control criteria were met for this parameter.

# Laboratory Method/Preparation Blank Analyses

The following contaminant was detected in the laboratory method/preparation blanks at the following maximum concentration:

⁽¹⁾ Maximum concentration present in a laboratory method blank affecting all samples.

TO:

WALKER, G. - PAGE 2

DATE:

July 13, 2007

An action level of five times the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results less than the blank action level reported for the above analyte were qualified "U" as a result of laboratory blank contamination. Lead was qualified due to laboratory blank contamination.

#### <u>Notes</u>

The chain-of-custody listed seven additional samples that were to be analyzed for lead; however, those samples were not analyzed for lead. The Sample Receipt Condition Report for cooler 1 of 4 states that the lead analyses for those samples were cancelled on May 10, 2007 by J.D. Spalding.

#### Executive Summary

Laboratory Performance: Lead was qualified due to laboratory blank contamination.

## Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Data Review", October 2004, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the DoD QSM and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS Matthew D. Kraus

Tetra Tech NUS Joseph A. Samchuck

**Environmental Chemist** 

Quality Assurance Officer

#### Attachments:

- 1. Appendix A Qualified Analytical Results
- 2. Appendix B Results as reported by the Laboratory
- 3. Appendix C Support Documentation

APPENDIX A QUALIFIED ANALYTICAL RESULTS

# **Data Validation Qualifier Codes:**

= Lab Blank Contamination

= Field Blank Contamination

Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)

GC/MS Tuning Noncompliance

= MS/MSD Recovery Noncompliance D

= LCS/LCSD Recovery Noncompliance E

F Lab Duplicate Imprecision

G = Field Duplicate Imprecision

H Holding Time Exceedance

= ICP Serial Dilution Noncompliance

GFAA PDS - GFAA MSA's r < 0.995

= ICP Interference - includes ICS % R Noncompliance K

L = Instrument Calibration Range Exceedance

Sample Preservation Noncompliance M

= Internal Standard Noncompliance Ņ

N01 = Internal Standard Recovery Noncompliance Dioxins

N02 = Recovery Standard Noncompliance Dioxins

N03 = Clean-up Standard Noncompliance Dioxins

= Poor Instrument Performance (e.g. base-line drifting)

= Uncertainty near detection limit (< 2 x.IDL for inorganics and <CRQL for organics) Q

= Other problems (can encompass a number of issues; e.g. chromatography, interferences, etc.)

= Surrogates Recovery Noncompliance

= Pesticide/PCB Resolution S

= % Breakdown Noncompliance for DDT and Endrin

= % Difference between columns/detectors >25% for positive results determined via GC/HPLC

= Non-linear calibrations; correlation coefficient r < 0.995

W = EMPC result

= Signal to noise response drop

= Percent solids <30%

Uncertainty at 2 sigma deviation is greater than sample activity

						Į
nsample	PEN21GW0402	nsample	PEN21GW1902	o dues d	DEN21CW2002	
samp_date	5/8/2007	samp date	5/9/2007	organia dete		
lab_id	SA2172-009	Di del	SA2210-003	Samp_date	9/8/2007	
type		) ·	000-01-2500	lab_id	SA2210-001	
		dc_type	NZ.	qc_type	ΣZ	
units	UG/L	units	NG/L	units	1/51	
Pct_Solids	0.0	Pct_Solids	0.0	Pot Solids	) ) (	
DUP_OF:		DUP_OF:		DIP OF:		

	ıi	7
	Qual	
	Val Qual	
	Val Result Qual	43.9
DUP_OF:	Parameter	LEAD
	Qual	
	Val Qual	
	Result	18.8
DUP_OF:	Parameter	LEAD
	Qual	
	Val Qual	
	Result	579

Parameter

LEAD

nsample	PEN21GW2002D	nsample	PEN21GW2402	nsample	PEN21GW2502
samp_date	5/9/2007	samp_date	5/9/2007	samp date	5/9/2007
lab_id	SA2210-002	lab_id	SA2210-004	idel	SA2210-005
dc_type	WZ	qc_type	Z	S.E. S.C. TVD	NIN
units	UG/L	units	ng/L	do_gbo	\ <u>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u>
Pct_Solids	0.0	Pct_Solids	0.0	Pot Solide	) c
DUP_OF:	PEN21GW2002	DUP OF		DIID OF:	

Parameter	Result	Val Qual	Qual Code	Parameter	Result	Val Qual	Qual
LEAD	40.6			LEAD	10.8		

Val Result Qual

Parameter

LEAD

46.2

nsample	PEN21GW4304	nsample	PEN21GW5302	elamesa	PEN21GW5302D
samp_date	5/9/2007	samp_date	5/9/2007	samp date	E/0/00/2
lab_id	SA2211-004	lab_id	SA2211-001	de	0/3/2007
qc_type	ZZ	dc type	N N		OAZZII-OOZ
units	ng/l	stiuli	: 2		
\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1 0		0.9/L	Units	UG/L
spilas	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP_OF:		DUP_OF:		DUP_OF:	PEN21GW5302

		L
Q	Val Qual	
0.0 PEN21GW5302	Result Qual	40.2
lids I <del>F</del> .:	Parameter	
Pct_Solids DUP_OF:		FAD
	Qual	
	Val Qual Result Qual Code	
	Result	45
0.0		
Pct_Solids DUP_OF:	Parameter	LEAD
	Qual	
	Val Qual	
	Result	80.8
0.0	Parameter	

LEAD

Qual

						1
nsample	PEN21GW6701	nsample	PEN21GW6801	nsample	PEN21GW6901	
samp_date	5/9/2007	samp_date	5/9/2007	samp_date	2/9/2007	
lab_id	SA2211-003	lab_id	SA2210-009	lab id	SA2210-007	
dc_type	NA.	qc_type	- WZ	dc type	NZ.	
nnits	UG/L	units	UG/L	units	ne. UG/L	
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0	
DUP_OF:		DUP_OF:		DUP OF:		

Val Qual   Result Qual   Code	21.6
 Parameter	LEAD
Qual	
Val Quai	
Result	114
Parameter	LEAD
Qual	
Val Qual	
Result	57.4

Parameter

LEAD

PROJ_NO: 00583

SDG: CTO056-5 MEDIA: WATER DATA FRACTION: M

nsample	PEN21GW7001	nsample	PEN21@W7101	· olumesu	FOOD/NO FOR LO
samp date	5/9/2007	4000		2000	FEINZ   GVV / ZO
0.00	003/6/0	samp_date	5/9/2007	samp_date	5/9/2007
rab_id	SA2210-010	lab_id	SA2210-008	<u> </u>	300000000
and type	NIM			P	3AZZ 10-000
		dc_type	≥Z.	qc_type	NZ.
units	NG/L	units	/BI	o tici	: C
Pot Solids			1 } )	Sillin	UG/L
SP100-10-1	0.0	Pct_Solids	0:0	Pct Solids	00
DUP_OF:		DUP OF:			) }
	į			. 5	

	Qual	
	Val Qual	
	Val Result Qual	6.3
0.0		
Pct_Solids DUP_OF:	Parameter	AD
<u>.</u> O	Qual	A
	Val Qual	ח
	Result	.2.2
0:0		
DUP_OF:	Parameter	EAD
'	Qual	A
1		

Val Result Qual

Parameter

LEAD

b

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW0402

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2172-009

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	•	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	579			P	1	5.0	0.91

Bottle ID: A

# INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW1902

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2210-003

Concentration Units: ug/L

CAS No.	Analyte	Concentration (	C Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	18.8	•	P	1	5.0	0.91

Bottle ID: A

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#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW2002

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2210-001

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	43.9			P	1	5.0	0.91

Bottle ID: A/B

# INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW2002D

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2210-002

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	•		DF	Adjusted PQL	
7439-92-1	LEAD, TOTAI	46.2			P	1	5.0	0.91

Bottle ID: A

l

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW2402

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2210-004

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	40.6			Р	1	5.0	0.91

Bottle ID: A

## INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW2502

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2210-005

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	10.8			P	1	5.0	0.91

Bottle ID: A

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW4304

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2211-004

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	80.8			P	1	5.0	0.91

Bottle ID: A

## INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW5302

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2211-001

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL A	Adjusted IDL
7439-92-1	LEAD, TOTAL	45.0		.,.	P	1	5.0	0.91

Bottle ID: A

l

# INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW5302D

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2211-002

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	•	M		Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	40.2			P	1	5.0	0.91

Bottle ID: A

l

# INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW6701

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2211-003

Concentration Units: ug/L

CAS No.	Analyte	Concentration	С	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	57.4			P	1	5.0	0.91

Bottle ID: A

# INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW6801

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2210-009

Concentration Units: ug/L

CAS No.	Analyte	Concentration C Q	M	DF Ad	justed PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	114	P	1	5.0	0.91

Bottle ID: A

## INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW6901

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2210-007

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M		Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	21.6			P	1	5.0	0.91

Bottle ID: A

## INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW7001

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2210-010

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	1.0	I		P	. 1	5.0	0.91

Bottle ID: A

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW7101

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2210-008

Concentration Units: ug/L

CAS No.		Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	2.2	I		P	1	5.0	0.91

Bottle ID: A

## INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW7201

Matrix: WATER

SDG Name:

CTO056-5

Percent Solids: 0.00

Lab Sample ID: SA2210-006

Concentration Units: ug/L

CAS No.	Analyte	Concentration C Q	M	DF	Adjus	ted PQL A	djusted IDL
7439-92-1	LEAD, TOTAL	6.3	P	1		5.0	0.91

Bottle ID: A



# INTERNAL CORRESPONDENCE

TO:

MR. G. WALKER

DATE:

**JULY 20, 2007** 

FROM:

**EDWARD SEDLMYER** 

**COPIES:** 

**DV FILE** 

SUBJECT:

ORGANIC DATA VALIDATION- VOA/PAH/TPH

CTO 0056, NAS PENSACOLA

**SDG CTO056-6** 

SAMPLES:

10/Aqueous

PEN21GW3802

PEN21GW3802D

PEN21GW46R01

PEN21GW5101 PEN21GW7401 PEN21GW5202 PEN21GW7501 PEN21GW7301 PEN21GW7601

TB051007

#### **OVERVIEW**

The sample set for CTO 0056, NAS Pensacola, SDG CTO056-6 consists of one (1) trip blank and nine (9) aqueous environmental samples. The following field duplicate pair was associated with this SDG: PEN21GW3802 / PEN21GW3802D. All samples were analyzed for BTEX volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and total petroleum hydrocarbon (TPH). The trip blank was analyzed for VOCs only.

The samples were collected by TetraTech NUS on May 10, 2007 and analyzed by Katahdin Analytical Services, Inc. All analyses were conducted in accordance with SW-846 Methods 8260B, 8270SIM, and FDEP FL-PRO (TPH) analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
  - Holding times
    - Initial/continuing calibrations
- Laboratory method blank results
  - Field Duplicate Results
- Detection Limits

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

#### Volatiles

The field duplicate precision exceeded the 30% relative percent difference (RPD) quality control limit for ethylbenzene in the field duplicate pair PEN21GW3802 / PEN21GW3802D. The positive results for ethylbenzene in the duplicate samples PEN21GW3802 / PEN21GW3802D were qualified as estimated (J).

Sample PEN21GW7301 required a 5X dilution for ethylbenzene because of a concentrations greater than the linear calibration range of the instrument. The ethylbenzene result for sample PEN21GW7301 was reported from the diluted analysis. All other results were reported from the undiluted analysis.

#### **PAHs**

Samples PEN21GW3802, PEN21GW3802D, PEN21GW5202, PEN21GW7301, PEN21GW7401, PEN21GW7501, and PEN21GW7601 required dilutions for naphthalene, 1-methylnaphthalene, and/or 2-methylnaphthalene because of concentrations greater than the linear calibration range of the instrument. The naphthalene, 1-methylnaphthalene, and/or 2-methylnaphthalene results were reported from the diluted analyses. All other results are reported from the undiluted analysis.

The continuing calibration analyzed on 05/22/07 @10:38 had percent differences greater than 25% for 2-methylnaphthalene and benzo(a)anthracene. The positive results for samples PEN21GW7601, PEN21GW3802, and PEN21GW5202 were qualified as estimated, J.

#### TPH

No qualification of the data was necessary.

#### **Additional Comments:**

Positive results less than the reporting limit (RL) were qualified as estimated "J", due to uncertainty near the detection limit.

#### **EXECUTIVE SUMMARY**

Laboratory Performance Issues: Several minor continuing calibration noncompliances were noted for the PAH fraction.

Other Factors Affecting Data Quality: Field duplicate imprecision resulted in the qualification of one VOC compound in the field duplicate pair.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the DoD QSM for Environmental Laboratories.

Tetra Tech NUS

Edward Sedlmyer Chemist/Data Validator

Tetratech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

#### Attachments:

Appendix A - Qualified Analytical Results

Appendix B – Results as Reported by the Laboratory

Appendix C – Support Documentation

00583 PROJ_NO:

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: OV

nsample	PEN21GW3802	nsample	PENZ1GW3802D	nsample	PEN21GW46R01RA
samp_date	5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
lab_id	SA2239-3	lab_id	SA2239-4	lab_id	SA2239-11RA
qc_type	ΣZ	qc_type	- NM	qc_type	NΩ
units	UG/L	nnits	UG/L	units	NG/L
Pct_Solids	0.0	Pct_Solids	0.0	. Pct_Solids	0.0
DUP_OF:		DUP_OF:	PEN21GW3802	DUP_OF:	

Parameter	Val Result Qual		Qual	Parameter	Result	Result Qual Code	Qual	Parameter	Result	Val
BENZENE	0.5	n		BENZENE	0.5	Э		BENZENE	0.5	_
ETHYLBENZENE	2	٦	ŋ	ETHYLBENZENE	4	7	ŋ	ETHYLBENZENE	0.3	כ
M+P-XYLENES	17			M+P-XYLENES	23			M+P-XYLENES	-	ר
O-XYLENE	2			O-XYLENE	0			O-XYLENE	0.4	ח
TOLUENE	0.4	ם		TOLUENE	0.4	_		TOLUENE	0.4	ם
TOTAL XYLENES	19			TOTAL XYLENES	25			TOTAL XYLENES	-	ח

Qual

		Page 1 of 4 [7/20/2007 1:17:01 PM]

PROJ_NO: 00583 SDG: CT0056-6 MEDIA: WATER DATA FRACTION: OV

nsample samp date	PEN21GW5101 5/10/2007			nsample samp date	PEN21GW5202 5/10/2007	202		nsample samp date	PEN21GW7301 5/10/2007	301	
lab_id	SA2239-2			lab_id	SA2239-1			lab_id	SA2239-10		
qc_type	NN			qc_type	ΝN			qc_type	NZ.		
units	UG/L			units	UG/L			units	NG/L		
Pct_Solids	0.0			Pct_Solids	0.0			Pct_Solids	0.0		
DUP_OF:				DUP_OF:				DUP_OF:			
		Val	Qual			Val	Qual			Val	Qual
Parameter	Result Qual		Code	Parameter	Res	Result Qual		Parameter	Resi	Result Qual	
BENZENE	0.5			BENZENE		0.5 U		BENZENE	0	0.5 U	
ETHYLBENZENE	0.3			ETHYLBENZENE	_	0.3		M+P-XYLENES		41	
M+P-XYLENES	-	n		M+P-XYLENES		<u>٦</u>		O-XYLENE		-	
O-XYLENE	0.4	n		O-XYLENE		0.4 U		TOLUENE		က	
TOLUENE	0.4	ם		TOLUENE		0.4 U		TOTAL XYLENES		52	
TOTAL XYLENES	-	ם		TOTAL XYLENES		٦ ٦					

PROJ_NO: 00583

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: OV

PEN21GW7301DL	nsample	PEN21GW7401	nsample	PEN21GW7501
5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
SA2239-10DL	lab_id	SA2239-8	lab_id	SA2239-9
NN	qc_type	MN	qc_type	ΣZ
NG/L	units	NG/L	units	UG/L
0.0	Pct_Solids	0.0	Pct_Solids	0.0
	DUP_OF:		DUP_OF:	

BENZENE		350	ETHYLBENZENE
Parameter	Qual	Val Result Qual	Parameter

Parameter	Val Result Qual	Val Qual	Qual	Parameter	Result	Val Qual	Qual
BENZENE	0.5	n		BENZENE	0.5	n	
ETHYLBENZENE	120			ETHYLBENZENE	9		
M+P-XYLENES	190			M+P-XYLENES	10		
O-XYLENE	0.4	_		O-XYLENE	4.0	b	-
TOLUENE	9			TOLUENE	0.4	ם	
TOTAL XYLENES	190			TOTAL XYLENES	10		
יכוטראוררוארס	2			וסואראודים		2	2

PROJ_NO: 00583

SDG: CT0056-6 MEDIA: WATER DATA FRACTION: OV

nsample	PEN21GW7601	nsample	TB051007
samp_date	5/10/2007	samp_date	4/25/2007
lab_id	SA2239-6	lab_id	SA2239-12
dc_type	ΣZ	qc_type	ΣZ
nnits	NG/L	units	NG/L
Pct_Solids	0.0	Pct_Solids	0.0
DUP_OF:		DUP OF:	

Parameter	Val Result Qual		Qual Code	Parameter	Val Result Qual	Val Qual	Qual Code
BENZENE	0.5	n		BENZENE	. 0.5	D	
THYLBENZENE	45			ETHYLBENZENE	0.3	ס	
H-YYLENES	200			M+P-XYLENES	-	ם	
-XYLENE	6			O-XYLENE	0.4	ס	
OLUENE	12			TOLUENE	0.4	ם	
OTAL XYLENES	200			TOTAL XYLENES	-	ם	

PROJ_NO: 00583

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: PAH

nsample	PEN21GW3802	nsample	PEN21GW3802D	nsample	PEN21GW3802DDL
samp_date	5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
lab_id	SA2239-3	lab_id	SA2239-4	lab_id	SA2239-4DL
qc_type	ZZ	qc_type	VZ	qc_type	ΣZ
units	NG/L	units	UG/L	units	UG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP_OF:		DUP_OF:	PEN21GW3802	DUP_OF:	PEN21GW3802

	TOTAL CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRA			
ual	Parameter	Result	Val Qual	Qual Code
	1-METHYLNAPHTHALENE	28		
	2-METHYLNAPHTHALENE	66	<u>ں</u>	ပ
	NAPHTHALENE	32		

		Val	Qual			Val	Qual	
Parameter	Result	Qual	Code	Parameter	Result	Qual	Code	
ACENAPHTHENE	1			ACENAPHTHENE	-			1-METHYLNAPH
ACENAPHTHYLENE	90.0	n		ACENAPHTHYLENE	90.0	⊃		2-METHYLNAPH
ANTHRACENE	90.0	n		ANTHRACENE	90:0	⊃		NAPHTHALENE
BENZO(A)ANTHRACENE	0.07	n		BENZO(A)ANTHRACENE	0.07	⊃		
BENZO(A)PYRENE	0.05	Ω		BENZO(A)PYRENE	0.05	n		
BENZO(B)FLUORANTHENE	0.08	n		BENZO(B)FLUORANTHENE	0.08	⊃		
BENZO(G,H,I)PERYLENE	0.09	n		BENZO(G,H,I)PERYLENE	0.09	⊃		
BENZO(K)FLUORANTHENE	0.1	n		BENZO(K)FLUORANTHENE	0.1	_		
CHRYSENE	0.07	Π		CHRYSENE	0.07	⊃		
DIBENZO(A,H)ANTHRACENE	0.1	n		DIBENZO(A,H)ANTHRACENE	0.1	⊃		
FLUORANTHENE	90.0	n		FLUORANTHENE	90.0	⊃		
FLUORENE	0.09	ſ	d.	FLUORENE	9.0			
INDENO(1,2,3-CD)PYRENE	0.1	Π		INDENO(1,2,3-CD)PYRENE	0.1	⊃		
PHENANTHRENE	0.05	n		PHENANTHRENE	0.05	ח		
PYRENE	90.0	n		PYRENE	90:0	כ		

PROJ_NO: 00583

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: PAH

•					
nsample	PEN21GW3802DL	nsample	PEN21GW46R01	nsample	PEN21GW5101
samp_date	5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
lab_id	SA2239-3DL	lab_id	SA2239-11	lab_id	SA2239-2
qc_type	ΣZ	qc_type	ΣZ	qc_type	≥Z
units	UG/L	units	NG/L	nnits	NG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP OF:		DUP OF:		DUP OF:	

Parameter	Result	Val Qual	Qual	
1-METHYLNAPHTHALENE	62			1-MET
2-METHYLNAPHTHALENE	100	ſ	ပ	2-MET
NAPHTHALENE	31			ACEN/

Oual Code

Val Qual

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_	#	-	-	77	9	9	2	25	98	8	0.1	20	0.1	9	2	6	0.5	35	<u></u>
	Result			0.07	90.0	90.0	0.07	0.05	0.08	0.08	0	0.07	0	90.0	0.07	0.09	0	0.05	0.06
	Parameter	1-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	ACENAPHTHENE	ACENAPHTHYLENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	CHRYSENE	DIBENZO(A,H)ANTHRACENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PHENANTHRENE	PYRENE
Qual	Code		Д												Ф			Ь	
Val	Qual		ſ		⊃	n	o O	Π	n	_	n	ב	n	⊃	_	n		٦	Π
	Result	0.4	0.2	0.4	90.0	90.0	0.07	0.05	0.08	0.09	0.1	0.07	0.1	90.0	0.1	0.1	0.4	0.00	90.0
	Parameter	1-METHYLNAPHTHALENE	2-METHYLNAPHTHALENE	ACENAPHTHENE	ACENAPHTHYLENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	CHRYSENE	DIBENZO(A,H)ANTHRACENE	FLUORANTHENE	FLUORENE	INDENO(1,2,3-CD)PYRENE	NAPHTHALENE	PHENANTHRENE	PYRENE
暿	ge																		

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PROJ_NO: 00583

SDG: CT0056-6 MEDIA: WATER DATA FRACTION: PAH

PEN21GW7301	5/10/2007	SA2239-10	NΑ	UG/L	0.0	
						UP_OF:
					9.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
					1	
						DUP_OF:
	PEN21GW5202 nsample PEN21GW5202DL nsample	PEN21GW5202 nsample remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable remarkable re	PEN21GW5202         nsample         PEN21GW5202DL         nsample           5/10/2007         samp_date         5/10/2007         samp_date           SA2239-1         lab_id         SA2239-1DL         lab_id	PEN21GW5202         nsample         PEN21GW5202DL         nsample           5/10/2007         samp_date         5/10/2007         samp_date           5/10/2007         samp_date         lab_id         lab_id         lab_id           NM         qc_type         NM         qc_type	PEN21GW5202         nsample         PEN21GW5202DL         nsample           5/10/2007         samp_date         5/10/2007         samp_date           5/10/2007         samp_date         samp_date         lab_id         lab_id           NM         qc_type         NM         qc_type           UG/L         units         UG/L         units	nsample         PEN21GW5202         nsample         PEN21GW5202DL         nsample         PEN21GW7301           samp_date         5/10/2007         samp_date         5/10/2007         samp_date         5/10/2007           lab_id         SA2239-1         lab_id         SA2239-10L         lab_id         SA2239-10           qc_type         NM         qc_type         NM         mits         UG/L         units         UG/L           units         0.0         Pct_Solids         0.0         Pct_Solids         0.0         0.0

Qual			Val	Qual	
Code	Parameter	Result	Qual	Code	
	1-METHYLNAPHTHALENE	130			1-METHY
	2-METHYLNAPHTHALENE	140	ſ	ပ	ACENAP
	NAPHTHALENE	140			ACENAPI

Val Result Qual

Parameter

90.0

nal			Val	Qual
ode	Parameter	Result	Qual	Code
	1-METHYLNAPHTHALENE	4		
ပ	ACENAPHTHENE	0.1	7	۵
	ACENAPHTHYLENE	90.0	D	
	ANTHRACENE	90.0	D	
	BENZO(A)ANTHRACENE	0.07	D	
	BENZO(A)PYRENE	0.05	·D	
	BENZO(B)FLUORANTHENE	0.08	ס	
	BENZO(G,H,I)PERYLENE	0.0	D	
	BENZO(K)FLUORANTHENE	0.1	n	
	CHRYSENE	0.07	n	
	DIBENZO(A,H)ANTHRACENE	0.1	n	
	FLUORANTHENE	0.08	ſ	Ь
	FLUORENE	0.07	n	
	INDENO(1,2,3-CD)PYRENE	0.1	ם	
	PHENANTHRENE	0.05	n	
	PYRENE	0.09	٦	Ь

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0.05

BENZO(B)FLUORANTHENE

BENZO(A)PYRENE

BENZO(A)ANTHRACENE

**ACENAPHTHYLENE** 

ANTHRACENE

ACENAPHTHENE

BENZO(G,H,I)PERYLENE

0.09

0.07

⊃

DIBENZO(A,H)ANTHRACENE

FLUORANTHENE

FLUORENE

BENZO(K)FLUORANTHENE

CHRYSENE

90.0

0.05

0.7

NDENO(1,2,3-CD)PYRENE

PHENANTHRENE

PYRENE

# PROJ_NO: 00583

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: PAH

nsample	samp_date	lab_id	qc_type	nnits	Pct_Solids	A GILO
PEN21GW7401	5/10/2007	SA2239-8	ΣN	UG/L	0.0	
nsample	samp_date	lab_id	dc_type	units	Pct_Solids	OF OF
PEN21GW7301DL	5/10/2007	SA2239-10DL	ΣN	, ng/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP OF:

PEN21GW7401DL 5/10/2007 SA2239-8DL NM UG/L 0.0

	1-METHYLN	2-METHYLN/	
Qual Code			
Val Result Qual			
Result	9	35	
Parameter	2-METHYLNAPHTHALENE	NAPHTHALENE	

			Val	Qual	
	Parameter	Result	Qual	Code	
T	1-METHYLNAPHTHALENE	က			
	2-METHYLNAPHTHALENE	4			
	ACENAPHTHENE	0.07	n		
	ACENAPHTHYLENE	90.0	n		
	ANTHRACENE	90.0	n		
	BENZO(A)ANTHRACENE	0.07	n		
	BENZO(A)PYRENE	0.05	Π		
	BENZO(B)FLUORANTHENE	0.08	n		
	BENZO(G,H,I)PERYLENE	0.08	Π		
	BENZO(K)FLUORANTHENE	0.1	n		
	CHRYSENE	0.07	n		
	DIBENZO(A,H)ANTHRACENE	0.1	Π		
	FLUORANTHENE	0.1	ſ	Ь	
	FLUORENE	0.07	n		
	INDENO(1,2,3-CD)PYRENE	60'0	n		
	PHENANTHRENE	0.1	. [	Ь	
	PYRENE	0.1	ſ	Ь	

Parameter	Result	Val	Qual Code
NAPHTHALENE	10		

PROJ_NO: 00583

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: PAH

nsample	samp_date	lab_id	qc_type	nnits	Pct_Solids	DUP OF:
PEN21GW7501DL	5/10/2007	SA2239-9DL	ΣZ	NG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP OF:
PEN21GW7501	5/10/2007	SA2239-9	ΣZ	NG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP OF:

PEN21GW7601 5/10/2007 SA2239-6

NM UG/L

NAPHTHALENE

Val Qual

Parameter

1-METHYLNAPHTHALENE 2-METHYLNAPHTHALENE ه الم

0.7

BENZO(B)FLUORANTHENE

**SENZO(A)ANTHRACENE** 

BENZO(A)PYRENE

**ACENAPHTHYLENE** 

ANTHRACENE

ACENAPHTHENE

BENZO(G,H,I)PERYLENE

BENZO(K)FLUORANTHENE

CHRYSENE

0.06

_ | _

0.2

₾

0.07

0.06

0.1

DIBENZO(A,H)ANTHRACENE

FLUORANTHENE

FLUORENE

INDENO(1,2,3-CD)PYRENE

PHENANTHRENE

PYRENE

0.05

		۷aا	Qual
 Parameter	Result	Qual	Code
 1-METHYLNAPHTHALENE	2		
2-METHYLNAPHTHALENE	ဇ		
ACENAPHTHENE	0.07	n	
ACENAPHTHYLENE	90.0	n	,
ANTHRACENE	90.0	n	
BENZO(A)ANTHRACENE	0.07	n	
BENZO(A)PYRENE	0.05	n	
BENZO(B)FLUORANTHENE	0.08	n	
BENZO(G,H,I)PERYLENE	0.08	n	
BENZO(K)FLUORANTHENE	0.1	n	·
CHRYSENE	0.07	n	
DIBENZO(A,H)ANTHRACENE	0.1	n	
FLUORANTHENE	90.0	U	
FLUORENE	0.07	n	
INDENO(1,2,3-CD)PYRENE	60.0	n	
PHENANTHRENE	0.05	n	
PYRENE	0.06	U	

## 00583 PROJ_NO:

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: PAH

PEN21GW7601DL 5/10/2007 SA2239-6DL NM UG/L 0.0 samp_date nsample qc_type lab_id units

Pct_Solids DUP_OF: Qual Val Result Qual 0 Parameter NAPHTHALENE

PROJ_NO: 00583

SDG: CT0056-6 MEDIA: WATER DATA FRACTION: PET

nsample	PEN21GW3802DDL	nsample	PEN21GW3802DL	nsample	PEN21GW46R01
samp_date	5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
lab_id	SA2239-4DL	lab_id	SA2239-3DL	lab_id	SA2239-11
qc_type .	NM	qc_type	ΝM	qc_type	ZZ
units	UG/L	units	NG/L	units	UG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP OF:	PEN21GW3802	DUP OF:		DUP OF	

DUP_OF:	PENZ1GW380Z		טקיס-:				
Parameter	Lab Result Qual	Lab Val Qual Qual Qual Code	Parameter	Result Qual Qual	Lab Qual	Val Qual	Qual
TPH (C08-C40)	16000		TPH (C08-C40)	18000			

Parameter	Result	Lab Qual	Val Qual	Val Qual Qual Code
TPH (C08-C40)	2100			

PROJ_NO: 00583

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: PET

nsample	PEN21GW5101RA2	nsample	PEN21GW5202RA	nsample	PEN21GW7301RA
samp_date	5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
lab_id	SA2239-2RA2	lab_id	SA2239-1RA	lab_id	SA2239-10RA
qc_type	ΣZ	qc_type	NM	qc_type	ZZ
units	UG/L	units	NG/L	units	UG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP_OF:		DUP_OF:		DUP_OF:	

	7/50				on siling	7/50				21112
Pct_Solids 0.	0.0				Pct_Solids 0.0	. 0				Pct_Solid
DUP_OF:					DUP_OF:					DUP_OF:
		Lab Val Qual	Val	Qual			Lab	Lab Val Qual	Qual	
Parameter	Result	Result Qual Qual Code	Qual	Code	Parameter	Result Qual Code	Qual	Qual	Code	
TPH (C08-C40)	290	_	-	В	TPH (C08-C40)	3100				TPH (C08-C

e a	Parameter	Result	Lab Qual	Val Qual Qual Code	Qual
	TPH (C08-C40)	2300			

00583 PROJ_NO:

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: PET

nsample	PEN21GW7401	nsample	PEN21GW7501RA	nsample	PEN21GW7601
samp_date	5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
lab_id	SA2239-8	lab_id	SA2239-9RA	lab_id	SA2239-6
qc_type	NA	qc_type	MN	qc_type	ΣZ
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP OF:		DUP OF:		DUP OF:	

Result Qual Qual Code	o Val ₃i Qual	Qual	Parameter	Result (	Lab	Val Qual	Sode	Parameter	Result	Lab	Val Qual
2300			TPH (C08-C40)	1400				TPH (C08-C40)	3700		

Parameter

TPH (C08-C40)

#### **APPENDIX A**

**QUALIFIED ANALYTICAL RESULTS** 

#### **Data Validation Qualifier Codes:**

A = Lab Blank Contamination

B = Field Blank Contamination

C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)

C01 = GC/MS Tuning Noncompliance

D = MS/MSD Recovery Noncompliance

E = LCS/LCSD Recovery Noncompliance

F = Lab Duplicate Imprecision

G = Field Duplicate Imprecision

H = Holding Time Exceedance

I = ICP Serial Dilution Noncompliance

J = GFAA PDS - GFAA MSA's r < 0.995 / ICP PDS Recovery Noncompliance

K = ICP Interference - includes ICS % R Noncompliance

L = Instrument Calibration Range Exceedance

M = Sample Preservation Noncompliance

N = Internal Standard Noncompliance

N01 = Internal Standard Recovery Noncompliance Dioxins

N02 = Recovery Standard Noncompliance Dioxins

N03 = Clean-up Standard Noncompliance Dioxins

O = Poor Instrument Performance (e.g. base-line drifting)

P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)

Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)

R = Surrogates Recovery Noncompliance

S = Pesticide/PCB Resolution

T = % Breakdown Noncompliance for DDT and Endrin

U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC

V = Non-linear calibrations; correlation coefficient r < 0.995

W = EMPC result

X = Signal to noise response drop

Y = Percent solids <30%

Z = Uncertainty at 2 sigma deviation is greater than sample activity

#### APPENDIX B

**RESULTS AS REPORTED BY THE LABORATORY** 

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 22-MAY-2007 14:02

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-3

Client ID: PEN21GW3802

SDG: CT0056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39161

CAS#	Compound	Flags	Results	DF	PQL	Adi.POI	Adj.MDL
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
100-41-4	Ethylbenzene		2	1.0	1	1	0.3
1330-20-7	Xylenes (total)		19	1.0	3	3	1
	m+p-Xylenes		17	1.0	2	2	
95-47-6	o-Xylene		2	1.0	1	1	1.0
1868-53-7	Dibromofluoromethane		112%	2.0		*	0.4
17060-07-0	1,2-Dichloroethane-D4		113%				
2037-26-5	Toluene-D8		97%				
460-00-4	P-Bromofluorobenzene		· 1098				
			1034				
	Page	01 of 01	T5997.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 15:22

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-4

Client ID: PEN21GW3802D

SDG: CT0056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39217

Units: ug/l

CAS#	Compound	Flags	Results	DF	POL	Adi. Pot	Adj.MDL
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
100-41-4	Ethylbenzene		4	1.0	1	1	0.3
1330-20-7	Xylenes (total)		25	1.0	3	3	1
	m+p-Xylenes		-23	1.0	2	2	1.0
95-47-6	o-Xylene	,	2	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		92%		-	_	0.4
17060-07-0	1,2-Dichloroethane-D4		93%				
2037-26-5	Toluene-D8		91%				
460-00-4	P-Bromofluorobenzene		97%				
	Page	01 of 01	T6032.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 24-MAY-2007 14:13

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-11RA Client ID: PEN21GW46R01

SDG: CT0056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39272

Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adi.Pol	Adj.MDL
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
	m+p-Xylenes	ט	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	ប	0.4	1.0	1	1	0.4
1330-20-7	Xylenes (total)	σ	1	1.0	3	3	1
1868-53-7	Dibromofluoromethane		86%				_
17060-07-0	1,2-Dichloroethane-D4		83%				
2037-26-5	Toluene-D8		86%				
460-00-4	P-Bromofluorobenzene		91%				

Page 01 of 01 S4675.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 14:50

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-2

Client ID: PEN21GW5101

SDG: CT0056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39217

Units: ug/l

T6031.D

CAS#	Compound	Flags	Results	DF	PQL	Adj.POL	Adj.MDL
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
108-88-3	Toluene	ប	0.4	1.0	1	1	0.4
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
1330-20-7	Xylenes (total)	σ	1	1.0	3	3 ·	1
	m+p-Xylenes	ប	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	σ	0.4	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		93%			_	
17060-07-0	1,2-Dichloroethane-D4		96%				
2037-26-5	Toluene-D8		90%				
460-00-4	P-Bromofluorobenzene		94%				

01 of 01

Page

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 14:18

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-1

Client ID: PEN21GW5202

SDG: CT0056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39217

·Units: ug/l

T6030.D

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
71-43-2	Benzene	ប	0.5	1.0	1	1	0.5
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
100-41-4	Ethylbenzene .	σ	0.3	1.0	1	1	0.3
1330-20-7	Xylenes (total)	υ	1	1.0	3	3	1
	m+p-Xylenes	σ	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	σ	0.4	1.0	1.	1	0.4
1868-53-7	Dibromofluoromethane		96%				
17060-07-0	1,2-Dichloroethane-D4		104%				
2037-26-5	Toluene-D8		93%				
460-00-4	P-Bromofluorobenzene		1028				

01 of 01

Page

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 15:35

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-10 Client ID: PEN21GW7301

SDG: CT0056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39218

Units: ug/l

S4657.D

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL	
108-88-3	Toluene	•	3	1.0	1	1	0.4	
71-43-2	Benzene	σ.	0.5	1.0	1	1	0.5	
100-41-4	Ethylbenzene	L	. 350	1.0	1	1	0.3	
	m+p-Xylenes		41	1.0	2	2	1.0	
95-47-6	o-Xylene		11	1.0	1.	<u>1</u>	0.4	
1330-20-7	Xylenes (total)		. 52	1.0	3	3	1	
1868-53-7	Dibromofluoromethane		89%					
17060-07-0	1,2-Dichloroethane-D4		87%					
2037-26-5	Toluene-D8		. 90%					
460-00-4	P-Bromofluorobenzene		94%					

01 of 01

Page

Client: Tetra Tech NUS, Inc

Project: CTO 056 NAs Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07

Extraction Date:

Analysis Date: 24-MAY-2007 14:44

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-10DL Client ID: PEN21GW7301

SDG: CTO056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39272

Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adi.MDI
108-88-3	Toluene	I	2	5.0	1	5	2
71-43-2	Benzene	σ	2	5.0	1	5	2
100-41-4	Ethylbenzene		350	5.0	1	5	2
	m+p-Xylenes		33	5.0	2	10	5
95-47-6	o-%ylene		8	5.0	1	5	2
1330-20-7	Xylenes (total)		41	5.0	3	15	6
1868-53-7	Dibromofluoromethane		87%		-		Ü
17060-07-0	1,2-Dichloroethane-D4	•	85%				
2037-26-5	Toluene-D8		87%				
460-00-4	P-Bromofluorobenzene		90%				

Page 01 of 01 S4676.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 16:27

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-8

Client ID: PEN21GW7401

SDG: CTO056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39217

Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adi. POL	Adj.MDL
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
108-88-3	Toluene		6	1.0	1	1	0.4
100-41-4	Ethylbenzene		120	1.0	1	1	0.3
1330-20-7	Xylenes (total)		190	1.0	3	3	1
	m+p-Xylenes		190	1.0	2	2	1.0
95-47-6	o-Xylene	ਹ	0.4	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		888				0.1
17060-07-0	1,2-Dichloroethane-D4		888				
2037-26-5	Toluene-D8		92%				
460-00-4	P-Bromofluorobenzene		948				

Page 01 of 01 T6034.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 16:59

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-9

Client ID: PEN21GW7501

SDG: CTO056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39217

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL	
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5	
108-88-3	Toluene	υ	0.4	1.0	1	1	0.4	
100-41-4	Ethylbenzene		6	1.0	1	1	0.3	
1330-20-7	Xylenes (total)		10	1.0	3	3	1	
	m+p-Xylenes		10	1.0	2	2	1.0	
95-47-6	o-Xylene	σ	0.4	1.0	1	1	0.4	
1868-53-7	Dibromofluoromethane		888		-	4-	0.4	
17060-07-0	1,2-Dichloroethane-D4		87%					
2037-26-5	Toluene-D8		93%					
460-00-4	P-Bromofluorobenzene		97%					
	z zzowozakoż opciałene		976					

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 15:54

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-6

Client ID: PEN21GW7601

SDG: CTO056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39217

CAS#	Compound	Flags	Results	DF	PQL	Adi. POT	Adj.MDL
71-43-2	Benzene	ד	0.5	1.0	1	1	0.5
108-88-3	Toluene		12	1.0	1	1	0.5
100-41-4	Ethylbenzene		45	1.0	1	1	0.3
1330-20-7	Xylenes (total)		200	1.0	3	3	1
	m+p-Xylenes		200	1.0	. 2	2	1.0
95-47-6	o-Xylene		9	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		91%			_	
17060-07-0	1,2-Dichloroethane-D4		90%				
2037-26-5	Toluene-D8		92%				
460-00-4	P-Bromofluorobenzene		95%				
	Page	01 of 01	T6033.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 04/25/07 Received Date: 05/11/07

Extraction Date:

Analysis Date: 23-MAY-2007 09:29

Report Date: 05/31/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-12 Client ID: TB051007

SDG: CTO056-6 Extracted by:

Extraction Method: SW846 5030

Analyst: SKT

Analysis Method: SW846 8260B

Lab Prep Batch: WG39217

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
71-43-2	Benzene	σ	0.5	1.0	1	1	0.5
108-88-3	Toluene	σ	0.4	1.0	1	1	0.4
100-41-4	Ethylbenzene	σ	0.3	1.0	1	1	0.3
1330-20-7	Xylenes (total)	σ	1	1.0	3	3	1
	m+p-Xylenes	ប	1.0	1.0	2	2	1.0
95-47-6	o-Xylene	σ	0.4	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		94%	4.0	-	7	0.4
17060-07-0	1,2-Dichloroethane-D4	•	96%				
2037-26-5	Toluene-D8		89%				
460-00-4	P-Bromofluorobenzene		93%				
			25.6				
	Page	01 of 01	T6021.D				

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 18-MAY-2007 19:46

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-3 Client ID: PEN21GW3802

SDG: CT0056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi POI	Adj.MDL
91-20-3	Naphthalene	L	21	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	JL	62	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	L	39	1.0	0.2	0.2	0.07
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		1.0	1.0	0.2	0.2	0.08
86-73-7	Fluorene	I	0.09	1.0	0.2	0.2	
85-01-8	Phenanthrene	. 0	0.05	1.0	0.2	0.2	0.07 0.05
120-12-7	Anthracene	П	0.06	1.0	0.2	0.2	
206-44-0	Fluoranthene	U	0.06	1.0	0.2		0.06
129-00-0	Pyrene	υ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	. U	0.07	1.0	0.2	0.2	0.06
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	บ	0.08	1.0		0.2	0.07
207-08-9	Benzo(k)fluoranthene	. π	0.1		0.2	0.2	0.08
50-32-8	Benzo(a) pyrene	υ	0.05	1.0	0.2	0.2	0.1
193-39-5	Indeno(1,2,3-cd)pyrene	. 0		1.0	0.2	0.2	0.05
191-24-2	Benzo(g,h,i) perylene	. <del>U</del>	0.1	1.0	0.2	0.2	0.1
53-70-3	Dibenzo (a, h) anthracene	υ	0.09	1.0	0.2	0.2	0.09
7297-45-2	2-Methylnaphthalene-d10	U	0.1	1.0	0.2	0.2	0.1
81103-79-9	Fluorene-d10		71%				
1718-52-1	Pyrene-d10		J 48%		•		
. 1/10 32-1	ryrene-aro		50%				-

Page 01 of 01 U7983.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 16:04

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-3DL Client ID: PEN21GW3802

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	$\mathbf{DF}$	PQL	Adi.POI	Adj.MDL
91-20-3	Naphthalene		31	40	0.2	8	5
91-57-6	2-Methylnaphthalene	J	100	40	0.2	. 8	3
90-12-0	1-Methylnaphthalene		62	40	0.2	8	6
208-96-8	Acenaphthylene	σ	2	40	0.2	8	2
83-32-9	Acenaphthene	σ	3	40	0.2	8	3
86-73-7	Fluorene	σ	. 3	40	0.2	8	3
85-01-8	Phenanthrene	σ	2	40	0.2	8	2
120-12-7	Anthracene	σ	2	40	0.2	8	2
206-44-0	Fluoranthene	σ	2	40	0.2	8	2
129-00-0	Pyrene	σ	2	40	0.2	8	2
56-55-3	Benzo(a)anthracene	σ.	3	40	0.2	8	3
218-01-9	Chrysene	· σ	3	40	0.2	8	3
205-99-2	Benzo(b)fluoranthene	σ		40	0.2	8	3
207-08-9	Benzo(k)fluoranthene	.υ	. 4	40	0.2	8	4
50-32-8	Benzo(a)pyrene	σ	2	40	0.2	. 8	2
193-39-5	Indeno(1,2,3-cd)pyrene	σ	4	40	0.2	8	4
191-24-2	Benzo(g,h,i)perylene	υ	4	40	0.2	8	4
53-70-3	Dibenzo(a,h)anthracene	σ	5	40	0.2	8	5
7297-45-2	2-Methylnaphthalene-d10		D				
81103-79-9	Fluorene-d10		D				
1718-52-1	Pyrene-d10		D				
							•

Page 01 of 01 U8009.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 18-MAY-2007 20:35

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-4

Client ID: PEN21GW3802D

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene	L	22	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	JL	65	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	L	40	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	υ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		1.0	1.0	0.2	0.2	0.07
86-73-7	Fluorene		0.6	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	ΰ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	ΰ.	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b) fluoranthene	ד	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	σ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	σ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		72%				
81103-79-9	Fluorene-d10		J 53%				
1718-52-1	Pyrene-d10		50%				

Page 01 of 01 U7984.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 13:00

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-4DL Client ID: PEN21GW3802D

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi POI	Adj.MDL
91-20-3	Naphthalene	•	32	20	0.2	4	2
91-57-6	2-Methylnaphthalene	J	99	20	0.2	4	1
90-12-0	1-Methylnaphthalene		58	20	0.2	4	3
208-96-8	Acenaphthylene	σ	1	20	0.2	4	7
83-32-9	Acenaphthene	ΰ	1	20	0.2	4	1
86-73-7	Fluorene	υ σ	1	20	0.2	4	1
85-01-8	Phenanthrene	ט	1	20	0.2	4	1
120-12-7	Anthracene	σ	1	20	0.2	4	1
206-44-0	Fluoranthene	σ	1	20	0.2	4	1
129-00-0	Pyrene	ָ ט	1	20	0.2	4	1
56-55 <b>-</b> 3	Benzo (a) anthracene	ΰ	1	20	0.2	4	1
218-01-9	Chrysene	σ.	1	20	0.2	4	1
205-99-2	Benzo(b)fluoranthene	σ	2	20	0.2	4	2
207-08-9	Benzo(k)fluoranthene	ਧ਼	2	20	0.2	4	2
50-32 <b>-</b> 8	Benzo(a)pyrene	, <del>u</del>	ı	20	0.2	4	1
193-39-5	Indeno (1,2,3-cd) pyrene	σ	2	20	0.2	4	2
191-24-2	Benzo(g,h,i)perylene	σ	2	20	0.2	4	2
53-70-3	Dibenzo(a,h)anthracene	σ	2	20	0.2	4	2
7297-45-2	2-Methylnaphthalene-d10		D				
81103-79-9	Fluorene-d10		D				•
1718-52-1	Pyrene-d10		D				

Page 01 of 01 U8005.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 17:34

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-11

Client ID: PEN21GW46R01

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi POT.	Adj.MDL
91-20-3	Naphthalene		0.4	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	J .	0.2	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		0.4	1.0	0.2	0.2	0.1
208-96-8	Acenaphthylene	Ū	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		0;4	1.0	0.2	0.2	0.07
86-73-7	Fluorene	I	0.1	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	I	0.06	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	- υ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a) anthracene	σ '	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	υ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.10	1.0	0.2	0.2	0.10
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	υ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		61%				
81103-79-9	Fluorene-d10		J 54%				
1718-52-1	Pyrene-d10		58%				
				•			

Page 01 of 01 U7993.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 18-MAY-2007 18:58

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-2

Client ID: PEN21GW5101

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		0.5	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	J	1.0	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		1	1.0	0.2	0.2	0.1
208-96-8	Acenaphthylene	υ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene	ΰ	0.07	1.0	0.2	0.2	0.07
86-73-7	Fluorene	σ	0.07	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	σ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	σ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	ŗŪ	0.06	1.0	0.2	0,2	0.06
56-55-3	Benzo(a) anthracene	υ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b) fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k) fluoranthene	ΰ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.09	1.0	0.2	0.2	0.09
191-24-2	Benzo(g,h,i)perylene	σ	0.08	1.0	0.2	0.2	0.08
53-70-3	Dibenzo(a,h)anthracene	υ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		55%				
81103-79-9	Fluorene-d10		J 49%				
1718-52-1	Pyrene-d10		52%				

Page 01 of 01 U7982.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 18-MAY-2007 18:09

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-1

Client ID: PEN21GW5202

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
91-20-3	Naphthalene	L	84	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	JL	95	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene	L	80	1.0	0.2	0.2	0.2
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		1.0	1,0	0.2	0.2	0.07
86-73-7	Fluorene		0.7	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	ד	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.05
206-44-0	Fluoranthene	ט	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	τ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	υ	0.07	1.0	0.2	0.2	0.08
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	Ū	0.08	1.0	0.2	0.2	0.07
207-08-9	Benzo(k) fluoranthene	ับ	0.1	1.0	0.2	0.2	
50-32-8	Benzo(a)pyrene	Ū	0.05	1.0	0.2	0.2	0.1
193-39-5	Indeno(1,2,3-cd)pyrene	Ü	0.1	1.0	0.2		0.05
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.1
53-70-3	Dibenzo (a, h) anthracene	ט	0.1	1.0		0.2	0.09
7297-45-2	2-Methylnaphthalene-d10	J	70%	1.0	0.2	0.2	0.1
81103-79-9	Fluorene-d10		61%				
1718-52-1	Pyrene-d10		76%				
-	2		108				

Page 01 of 01 U7981.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 16:49

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-1DL Client ID: PEN21GW5202

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	POL	Adi. POL	Adj.MDL
91-20-3	Naphthalene		140	40	0.2	8	5
91-57-6	2-Methylnaphthalene	J	140	40	0.2	8	3
90-12-0	1-Methylnaphthalene		130	40	0.2	8	6
208-96-8	Acenaphthylene	σ	2	40	0.2	8	2
83-32-9	Acenaphthene	ਧ	3	40	0.2	8	3
86-73-7	Fluorene	σ	3	40	0,2	8	3
85-01-8	Phenanthrene	ਹ	2	40	0.2	8	2
120-12-7	Anthracene	σ	2	40	0.2	8	2
206-44-0	Fluoranthene	σ.	2	40	0.2	8	2
129-00-0	Pyrene	σ	2	40	0.2	8	2
56-55-3	Benzo(a)anthracene	Ū	. 3	40	0.2	8	- 3
218-01-9	Chrysene	σ	. з	40	0.2	8	3
205-99-2	Benzo(b) fluoranthene	σ	3	40	0.2	8	3
207-08-9	Benzo(k)fluoranthene	σ	4	40	0.2	8	4 .
50-32-8	Benzo(a)pyrene	σ	2	40	0.2	8	2
193-39-5	Indeno(1,2,3-cd)pyrene	σ	. 4	40	0.2	8	4
191-24-2	Benzo(g,h,i)perylene	΄ σ	4	40	0.2	8	4
53-70-3	Dibenzo(a,h)anthracene	σ	5	40	0.2	8	5
7297-45-2	2-Methylnaphthalene-d10		D				
81103-79-9	Fluorene-d10		Ð				
1718-52-1	Pyrene-d10		D				

Page 01 of 01 U8010.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07 Analysis Date: 21-MAY-2007 16:49

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-10 Client ID: PEN21GW7301

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Add DOT.	Adj.MDL
91-20-3	Naphthalene	L	28	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	ᄁ	6	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		4	1.0	0.2	0.2	
208-96-8	Acenaphthylene	σ	0.06	1.0			0.2
83-32-9	Acenaphthene	I			0.2	0.2	0.06
86-73-7	Fluorene	U	0.10	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	_	0.07	1.0	0.2	0.2	0.07
		σ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	I	0.08	1.0	0.2	0.2	0.06
129-00-0	Pyrene	I	0.09	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	ד	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.1	1.0	0.2	0.2	0.1
191-24-2	Benzo(g,h,i)perylene	σ	0.09	1.0	0.2	0.2	0.09
53-70-3	Dibenzo (a,h) anthracene	σ	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		78%	1.0	0.2	0.2	0.1
81103-79-9	Fluorene-d10		65%				
1718-52-1	Pyrene-d10		65%	*			
			00%				

Page 01 of 01 U7992.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 23:27

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-10DL Client ID: PEN21GW7301

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
91-20-3	Naphthalene		35	10	0.2	2	1
91-57-6	2-Methylnaphthalene	រ .	6	10	0.2	2	0.7
90-12-0	1-Methylnaphthalene		4	10	0.2	2	2
208-96-8	Acenaphthylene	σ	0.6	10	0.2	2	0.6
83-32-9	Acenaphthene	σ	0.7	10	0.2	2	0.7
86-73-7	Fluorene	ΰ	0.7	10	0.2	2	0.7
85-01-8	Phenanthrene	ש	0.5	10	0.2	2	0.5
120-12-7	Anthracene	σ	0.6	10	0.2	2	0.6
206-44-0	Fluoranthene	σ	0.6	10	0.2	2	0.6
129-00-0	Pyrene	σ	0.6	10	0.2	2	0.6
56-55-3	Benzo(a)anthracene	σ	0.7	10	0.2	2	0.7
218-01-9	Chrysene	σ	0.7	10	0.2	2	0.7
205-99-2	Benzo(b)fluoranthene	Ū	0.8	10	0.2	2	0.8
207-08-9	Benzo(k)fluoranthene	σ	1	10	0.2	2	1
50-32-8	Benzo(a)pyrene	σ	0.5	10	0.2	2	0.5
193-39-5	Indeno(1,2,3-cd)pyrene	σ	1	10	0.2	2	1
191-24-2	Benzo(g,h,i)perylene	σ	0.9	10	0.2	2	0.9
53-70-3	Dibenzo(a,h)anthracene	บ	1	10	0.2	2	1
7297-45-2	2-Methylnaphthalene-d10		D				
81103-79-9	Fluorene-d10		D.		•		
1718~52-1	Pyrene-d10		D				

Page 01 of 01 U8000.D

# Report of Analytical Results

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 15:17

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-8

Client ID: PEN21GW7401

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Add DOI	Adj.MDL
91-20-3	Naphthalene	L	9	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	J	4	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		3	1.0	0.2	0.2	0.07
208-96-8	Acenaphthylene	ט	0.06	1.0	0.2	0.2	0.1
83-32-9	Acenaphthene	ט	0.07	1.0	0.2	0.2	0.06
86-73-7	Fluorene	σ	0.07	1.0	0.2	0.2	
85-01-8	Phenanthrene	I,	0.1	1.0	0.2	0.2	0.07
120-12-7	Anthracene	ם	0.06	1.0	0.2	0.2	0.05 0.06
206-44-0	Fluoranthene	I	0.1	1.0	0.2	0.2	
129-00-0	Pyrene	I	0.1	1.0	0.2	0.2	0.06 0.06
56-55-3	Benzo(a)anthracene	σ	0.07	1.0	0.2	0.2	0.08
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	υ	0.08	1.0	0.2	0.2	0.07
207-08-9	Benzo(k)fluoranthene	ਧ	0.1	1.0	0.2	0.2	0.08
50-32-8	Benzo(a)pyrene	σ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	ט	0.09	1.0	0.2	0.2	0.05
191-24-2	Benzo(g,h,i)perylene	υ	0.08	1.0	0.2	0.2	0.09
53-70-3	Dibenzo(a,h)anthracene	υ	0.1	1.0	0.2	0.2	0.08
7297-45-2	2-Methylnaphthalene-d10		63%	1.0	0.2	0.2	0.1
81103-79-9	Fluorene-d10		J 50%	*			
1718-52-1	Pyrene-d10		61%				

Page 01 of 01 U7990.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 19:14

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-8DL Client ID: PEN21GW7401

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene		10	3.0	0.2	0.6	0.3
91-57-6	2-Methylnaphthalene	J	. 5	3.0	0.2	0.6	0.2
90-12-0	1-Methylnaphthalene		4	3.0	0.2	0.6	0.4
208-96-8	Acenaphthylene	ប	0.2	3.0	0.2	0.6	0.2
83-32-9	Acenaphthene	σ	0.2	3.0	0.2	0.6	0.2
86-73-7	Fluorene	σ	0.2	3.0	0.2	0.6	0.2
85-01-8	Phenanthrene	σ	0.1	3.0	0.2	0.6	0.1
120-12-7	Anthracene	σ	0.2	3.0	0.2	0.6	0.2
206-44-0	Fluoranthene	ប	0.2	3.0	0.2	0.6	0.2
129-00-0	Pyrene	I	0.2	3.0	0.2	0.6	0.2
56-55-3	Benzo(a) anthracene	σ	0.2	3.0	0.2	0.6	0.2
218-01-9	Chrysene	σ	0.2	3.0	0.2	0.6	0.2
205-99-2	Benzo(b)fluoranthene	σ	0.2	3.0	0.2	0.6	0.2
207-08-9	Benzo(k)fluoranthene	σ	0.3	3.0	0.2	0.6	0.3
50-32-8	Benzo(a)pyrene	σ	0.1	3.0	0.2	0.6	0.1
193-39-5	Indeno(1,2,3-cd)pyrene	σ.	0.3	3.0	0.2	0.6	0.3
191-24-2	Benzo(g,h,i)perylene	σ	0.2	3.0	0.2	0.6	0.2
53-70-3	Dibenzo(a,h)anthracene	σ	0.3	3.0	0.2	0.6	0.3
7297-45-2	2-Methylnaphthalene-d10		61%				
81103-79-9	Fluorene-d10		60%				
1718-52-1	Pyrene-d10		73%				

U7995.D

01 of 01

Page

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 16:03

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-9

Client ID: PEN21GW7501

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene	L	7	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	J	0.6	1.0	. 0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		0.5	1.0	0.2	0.2	0.1
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene		0.2	1.0	0.2	0.2	0.07
86-73-7	Fluorene	I	0.1	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	σ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	σ	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	υ	0.06	1.0	0.2	0.2	0.06
129-00-0	Pyrene	΄ σ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a)anthracene	I	0.08	1.0	0.2	0.2	0.07
218-01-9	Chrysene	<b>I</b>	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	I	0.2	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	I	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	I	0.10	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	ਧ	0.09	1.0	0.2	0.2	0.09
191-24-2	Benzo(g,h,i)perylene	I	0.2	1.0	0.2	0.2	0.08
53-70-3	Dibenzo(a,h)anthracene	I	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		668				
81103-79-9	Fluorene-d10		J 57%			* 1	
1718-52-1	Pyrene-d10		57%				

Page 01 of 01 U7991.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 20:07

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-9DL Client ID: PEN21GW7501

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
91-20-3	Naphthalene		8	5.0	0.2	0.9	0.6
91-57-6	2-Methylnaphthalene	J	1	5.0	0.2	0.9	0.3
90-12-0	1-Methylnaphthalene	σ	0.7	5.0	0.2	0.9	0.7
208-96-8	Acenaphthylene	ט	0.3	5.0	0.2	0.9	0.3
83-32-9	Acenaphthene	σ	0.3	5.0	0.2	0.9	0.3
86-73-7	Fluorene	σ	0.3	5.0	0.2	0.9	0.3
85-01-8	Phenanthrene	σ	0.2	5.0	0.2	0.9	0.2
120-12-7	Anthracene	υ	0.3	5.0	0.2	0.9	0.3
206-44-0	Fluoranthene	σ	0.3	5.0	0.2	0.9	0.3
129-00-0	Pyrene	σ	0.3	5.0	0.2	0.9	0.3
56-55-3	Benzo (a) anthracene	ប	0.3	5.0	0.2	0.9	0.3
218-01-9	Chrysene	σ	0.3	5.0	0.2	0.9	0.3
205-99-2	Benzo(b) fluoranthene	σ	0.4	5.0	0.2	0.9	0.4
207-08-9	Benzo(k) fluoranthene	υ	0.5	5.0	0.2	0.9	0.5
50-32-8	Benzo(a)pyrene	σ	0.2	5.0	0.2	0.9	0.2
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.5	5.0	0.2	0.9	0.5
191-24-2	Benzo(g,h,i)perylene	σ	0.4	5.0	0.2	0.9	0.4
53-70-3	Dibenzo(a,h)anthracene	ਧ	0.6	5.0	0.2	0.9	0.6
7297-45-2	2-Methylnaphthalene-d10		65%				
81103-79-9	Fluorene-d10		598				
1718-52-1	Pyrene-d10		71%				

Page 01 of 01 U7996.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 18-MAY-2007 21:23

Report Date: 06/04/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-6

Client ID: PEN21GW7601

SDG: CT0056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
91-20-3	Naphthalene	L	. 9	1.0	0.2	0.2	0.1
91-57-6	2-Methylnaphthalene	J	3	1.0	0.2	0.2	0.07
90-12-0	1-Methylnaphthalene		2	1.0	0.2	0.2	0.1
208-96-8	Acenaphthylene	σ	0.06	1.0	0.2	0.2	0.06
83-32-9	Acenaphthene	σ	0.07	1.0	0.2	0.2	0.07
86-73-7	Fluorene	σ	0.07	1.0	0.2	0.2	0.07
85-01-8	Phenanthrene	਼ ਹ	0.05	1.0	0.2	0.2	0.05
120-12-7	Anthracene	Ū	0.06	1.0	0.2	0.2	0.06
206-44-0	Fluoranthene	- ਹ	0.06	1.0	0.2	. 0.2	0.06
129-00-0	Pyrene	σ	0.06	1.0	0.2	0.2	0.06
56-55-3	Benzo(a) anthracene	σ	0.07	1.0	0.2	0.2	0.07
218-01-9	Chrysene	σ	0.07	1.0	0.2	0.2	0.07
205-99-2	Benzo(b)fluoranthene	σ	0.08	1.0	0.2	0.2	0.08
207-08-9	Benzo(k)fluoranthene	σ	0.1	1.0	0.2	0.2	0.1
50-32-8	Benzo(a)pyrene	ΰ	0.05	1.0	0.2	0.2	0.05
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.09	1.0	0.2	0.2	0.09
191-24-2	Benzo(g,h,i)perylene	σ	0.08	1.0	0.2	0.2	0.08
53-70-3	Dibenzo(a,h)anthracene	υ .	0.1	1.0	0.2	0.2	0.1
7297-45-2	2-Methylnaphthalene-d10		59%				
81103-79-9	Fluorene-d10		J 42%				
1718-52-1	Pyrene-d10		J 42%				

Page 01 of 01 U7985.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 13:46

Report Date: 05/24/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-6DL Client ID: PEN21GW7601

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: JCG

Analysis Method: SW846 M8270C

Lab Prep Batch: WG38925

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adi.POL	Adj.MDL
91-20-3	Naphthalene		9	3.0	0.2	0.6	0.3
91-57-6	2-Methylnaphthalene	J	4	3.0	0.2	0.6	0.2
90-12-0	1-Methylnaphthalene	-	2	3.0	0.2	0.6	0.4
208-96-8	Acenaphthylene	ָס	0.2	3.0	0.2	0.6	0.2
83-32-9	Acenaphthene	Ū	0.2	3.0	0.2	0.6	0.2
86-73-7	Fluorene	σ .	0.2	3.0	0.2	0.6	0.2
85-01-8	Phenanthrene	σ	0.1	3.0	0.2	0.6	0.1
120-12-7	Anthracene	σ	0.2	3.0	0.2	0.6	0.2
206-44-0	Fluoranthene	ប	0.2	3.0	0.2	0.6	0.2
129-00-0	Pyrene	· <b>U</b>	0.2	3.0	0.2	0.6	0.2
56-55-3	Benzo(a)anthracene	σ	0.2	3.0	0.2	0.6	0.2
218-01-9	Chrysene	σ	0.2	3.0	0.2	0.6	0.2
205-99-2	Benzo(b) fluoranthene	σ	0.2	3.0	0.2	0.6	0.2
207-08-9	Benzo(k)fluoranthene	σ	0.3	3.0	0.2	0.6	0.3
50-32-8	Benzo(a)pyrene	υ	0.1	3.0	0.2	0.6	0.1
193-39-5	Indeno(1,2,3-cd)pyrene	σ	0.3	3.0	0.2	0.6	0.3
191-24-2	Benzo(g,h,i)perylene	σ	0.2	3.0	0.2	0.6	0.2
53-70-3	Dibenzo(a,h)anthracene	σ	0.3	3.0	0.2	0.6	0.3
7297-45-2	2-Methylnaphthalene-d10		59%				
81103-79-9	Fluorene-d10		J 43%				
1718-52-1	Pyrene-d10		J 41%				

Page 01 of 01 U8006.D

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 15:45

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-4DL

Client ID: PEN21GW3802D

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS# Compound

Petroleum Range Organics

n-Triacontane-D62

O-Terphenyl

Flags 1

Results DF

PQL Adj.PQL Adj.MDL 500 5000 2900

D

D

Page 01 of 01

CAE1123.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 04:52

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-3DL Client ID: PEN21GW3802

SDG: CT0056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics		18000	10	500	4800	2800
	n-Triacontane-D62		D				
	O-Terphenyl		D				

Page 01 of 01 CAE1115.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 03:36

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-11

Client ID: PEN21GW46R01

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics		2100	1.0	500	500	280
	n-Triacontane-D62		110%				
	O-Terphenyl		1148				

Page 01 of 01 CAE1114.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 21-MAY-2007 23:50

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-2RA2 Client ID: PEN21GW5101

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics	I	290	1.0	500	500	290
	n-Triacontane-D62		92%				
	O-Terphenyl		94%				,

Page 01 of 01 CAE1111.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07
Received Date: 05/11/07
Extraction Date: 05/15/07

Analysis Date: 18-MAY-2007 22:57

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-1RA Client ID: PEN21GW5202

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics		3100	1.0	500	510	300
	n-Triacontane-D62		93%				
	O-Terphenyl		95%				

Page 01 of 01 CAE1089.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 02:21

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-10RA Client ID: PEN21GW7301

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#

Compound Petroleum Range Organics

O-Terphenyl

n-Triacontane-D62

5

Flags R

Results DF 2300 1.0

PQL Adj.PQL Adj.MDL 500 500 300

146%

J152%

Page 01 of 01

CAE1113.d.

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 19-MAY-2007 02:42

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-8

Client ID: PEN21GW7401

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS# Compound

Petroleum Range Organics

n-Triacontane-D62 O-Terphenyl

Flags

Results

2300 1.0

PQL Adj.PQL Adj.MDL 500 500

290

888

92왕

Page 01 of 01 CAE1092.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07

Analysis Date: 22-MAY-2007 01:05

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-9RA

Client ID: PEN21GW7501

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics		1400	1.0	500	5.00	280
	n-Triacontane-D62		104%				
	O-Terphenyl		106%				

Page 01 of 01 CAE1112.d

Client: Tetra Tech NUS, Inc Project: CTO 056 NAS Pensacola

PO No:

Sample Date: 05/10/07 Received Date: 05/11/07 Extraction Date: 05/15/07 Analysis Date: 19-MAY-2007 01:27

Report Date: 05/25/2007

Matrix: WATER % Solids: NA

Lab ID: SA2239-6

Client ID: PEN21GW7601

SDG: CTO056-6 Extracted by: GN

Extraction Method: SW846 3510

Analyst: TR

Analysis Method: SW846 M8015

Lab Prep Batch: WG38927

Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
	Petroleum Range Organics		3700	1.0	500	500	300
	n-Triacontane-D62		90%				
	O-Terphenyl		94%				

01 of 01 CAE1091.d Page



#### **Tetra Tech NUS**

#### INTERNAL CORRESPONDENCE

TO:

**G. WALKER** 

DATE:

**JULY 13, 2007** 

FROM:

MATTHEW D. KRAUS

COPIES:

**DV FILE** 

SUBJECT:

**INORGANIC DATA VALIDATION – LEAD** 

NAS PENSACOLA - CTO 056

SDG - CTO056-6

SAMPLES:

7/Aqueous/

PEN21GW31R01

PEN21GW46R01

PEN21GW5401

PEN21GW7301

PEN21GW7401

PEN21GW7501

PEN21GW7601

#### **Overview**

The sample set for NAS Pensacola, CTO 056, SDG CTO056-6, consists of seven aqueous environmental samples which were collected by Tetra Tech NUS on May 10, 2007 and analyzed for total lead by Katahdin Analytical Services. Lead analyses were conducted using SW-846 method 6010B and Inductively Coupled Plasma – Atomic Emission Spectrometry (ICP-AES) methodology.

Data were evaluated based on the following parameters:

- Data Completeness
  - Holding Times
- Calibration Recoveries
  - Laboratory Method/Preparation Blank Analyses
- Detection Limits
- * All quality control criteria were met for this parameter.

#### **Holding Times**

Samples PEN21GW31R01 and PEN21GW5401 were not properly preserved (nitric acid was not added to the samples). Sample PEN21GW31R01 was qualified as estimated, "J", due to sample preservation noncompliance and sample PEN21GW5401 was qualified due to laboratory blank contamination.

#### Laboratory Method/Preparation Blank Analyses

The following contaminant was detected in the laboratory method/preparation blanks at the following maximum concentration:

Maximum

Action '

Analyte Lead ⁽¹⁾ Concentration (µg/L)

Level (µg/L)

0.932

4.66

⁽¹⁾ Maximum concentration present in a laboratory method blank affecting all samples.

TO: WALKER, G. – PAGE 2

**DATE:** July 13, 2007

An action level of five times the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results less than the blank action level reported for the above analyte were qualified "U" as a result of laboratory blank contamination. Lead was qualified due to laboratory blank contamination.

#### Notes

The laboratory received sample PEN21GW4601 (as identified on the chain-of-custody) labeled as sample PEN21GW46R01. The Tetra Tech NUS, Inc. sampler (Jason Bourgeois) was contacted and confirmed that the sample ID on the bottle label was to be used. The laboratory used the sample ID on the bottle label (PEN21GW46R01) and that ID is also presented in the database.

#### **Executive Summary**

Laboratory Performance: Lead was qualified due to laboratory blank contamination.

#### Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Data Review", October 2004, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the DoD QSM and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Matthew D. Kraus
Environmental Chemist

Tetra Tech MVS Joseph A. Samchuck Quality Assurance Officer

#### Attachments:

1. Appendix A - Qualified Analytical Results

2. Appendix B - Results as reported by the Laboratory

3. Appendix C – Support Documentation

APPENDIX A QUALIFIED ANALYTICAL RESULTS

### **Data Validation Qualifier Codes:**

= Lab Blank Contamination

= Field Blank Contamination

= Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)

= GC/MS Tuning Noncompliance

= MS/MSD Recovery Noncompliance D

= LCS/LCSD Recovery Noncompliance Ε

Lab Duplicate Imprecision

G = Field Duplicate Imprecision

Holding Time Exceedance

= ICP Serial Dilution Noncompliance

GFAA PDS - GFAA MSA's r < 0.995

ICP Interference - includes ICS % R Noncompliance K

Instrument Calibration Range Exceedance L

Sample Preservation Noncompliance

 Internal Standard Noncompliance N

N01 = Internal Standard Recovery Noncompliance Dioxins

N02 = Recovery Standard Noncompliance Dioxins

N03 = Clean-up Standard Noncompliance Dioxins

= Poor Instrument Performance (e.g. base-line drifting) P

= Uncertainty near detection limit (<2 x IDL for inorganics and <CRQL for organics)

= Other problems (can encompass a number of issues; e.g. chromatography, interferences, etc.) Q R

= Surrogates Recovery Noncompliance

S = Pesticide/PCB Resolution

= % Breakdown Noncompliance for DDT and Endrin

= % Difference between columns/detectors >25% for positive results determined via GC/HPLC

= Non-linear calibrations; correlation coefficient r < 0.995

W = EMPC result

= Signal to noise response drop

Percent solids <30%</li>

Uncertainty at 2 sigma deviation is greater than sample activity

**PROJ_NO:** 00583 SDG: CTO056-6 MEDIA: WATER DATA FRACTION: M

	0	7-13-07			-
nsample	PEN21GW31FØ1	dd, nsample	PEN21GW46R01	nsample	PEN21GW5401
samp_date	5/10/2007	samp_date	5/10/2007	samp_date	5/10/2007
lab_id	SA2239-007	lab_id	SA2239-011	h_dal	SA2239-005
dc_type	ΣZ	qc_type	MN	qc_type	WZ
nnits	UG/L	nnits	UG/L	units	ng/L
Pct_Solids	0.0	Pct_Solids	0.0	Pct_Solids	0.0
DUP_OF:		DUP_OF:		DUP_OF:	

	Parameter	AD
1	Qual	LE
	Val	
	Result	14.2
	Parameter	LEAD
	Qual Code	Σ
	Val Qual	٦
	Result	5.7
	Parameter	

LEAD

Parameter	Result	Val Qual	Qual
LEAD	1.8	⊃	∢

PROJ_NO: 00583

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: M

PEN21GW7501	5/10/2007	SA2239-009	WN	UG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
PEN21GW7401	5/10/2007	SA2239-008	ΣZ	UG/L	0.0	
nsample	samp_date	lab_id	qc_type	units	Pct_Solids	DUP_OF:
PEN21GW7301	5/10/2007	SA2239-010	ΝZ	NG/L	0.0	
nsample	samp_date	lab_id	dc_type	units	Pct_Solids	DUP_OF:

Parameter	LEAD
Qual	
Val Qual	-
Result	31.4
Parameter	LEAD
Qual	
Val Qual	
Result	63.7

Parameter

LEAD

Result Qual	8.5
Parameter	LEAD
Qual	
Val Qual	-
lesult	31.4

# 00583 PROJ_NO:

SDG: CTO056-6 MEDIA: WATER DATA FRACTION: M

PEN21GW7601 5/10/2007 SA2239-006 samp_date nsample

NM UG/L

qc_type lab_id

units

0.0

Pct_Solids DUP_OF:

Qual	Code	
Val	O	
	Result	27.1
	Parameter	

LEAD

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW31R01

Matrix: WATER

SDG Name:

CTO056-6

Percent Solids: 0.00

Lab Sample ID: SA2239-007

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	5.7			Р	1	5.0	0.91

Bottle ID: A

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW46R01

Matrix: WATER

SDG Name:

CTO056-6

Percent Solids: 0.00

Lab Sample ID: SA2239-011

Concentration Units: ug/L

CAS No.	Analyte	 Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	14.2			P	1	5.0	0.91

Bottle ID: D

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW5401

Matrix: WATER

SDG Name:

CTO056-6

Percent Solids: 0.00

Lab Sample ID: SA2239-005

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF Adj	usted PQL Ac	djusted IDL
7439-92-1	LEAD, TOTAL	1.8	I		P	1	5.0	0.91

Bottle ID: A

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW7301

Matrix: WATER

SDG Name:

CTO056-6

Percent Solids: 0.00

Lab Sample ID: SA2239-010

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	63.7			P	1	5.0	0.91

Bottle ID: D

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW7401

Matrix: WATER

SDG Name:

CTO056-6

Percent Solids: 0.00

Lab Sample ID: SA2239-008

Concentration Units: ug/L

CAS No.	Analyte	Concentration C	Q	M		ljusted PQL Adjusted ID	
7439-92-1	LEAD, TOTAL	31.4		P	1	5.0 0.9	

Bottle ID: D

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW7501

Matrix: WATER

SDG Name:

CTO056-6

Percent Solids: 0.00

Lab Sample ID: SA2239-009

Concentration Units: ug/L

CAS No.	Analyte	Concen	tration C	Q	M	DF A	djusted PQL A	
7439-92-1	LEAD, TOTA	AL	8.5		P	1	5.0	0.91

Bottle ID: D

#### INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: PEN21GW7601

Matrix: WATER

SDG Name:

CTO056-6

Percent Solids: 0.00

Lab Sample ID: SA2239-006

Concentration Units: ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted IDL
7439-92-1	LEAD, TOTAL	27.1			P	1	5.0	0.91

Bottle ID: D



#### INTERNAL CORRESPONDENCE

TO:

G. WALKER

DATE: FEBUARY 16TH, 2009

FROM:

**MEGAN CARSON** 

COPIES:

DV FILE

SUBJECT:

ORGANIC AND INORGANIC DATA VALIDATION- VOA AND METALS

CTO 056, NAS PENSACOLA

**SDG BR004-003** 

SAMPLES:

18/Water/Metals via 6010B:

NASP21-MW01-0109 NASP21-MW04-0109 NASP21-MW08-0109 NASP21-MW10-0109 NASP21-MW11-0109 NASP21-MW21-0109 NASP21-MW28-0109 NASP21-MW34-0109 NASP21-MW39-0109 NASP21-MW43-0109 NASP21-MW46R-0109 NASP21-MW48-0109 NASP21-MW69-0109 NASP21-MW73-0109-D NASP21-MW73-0109-D

3/Water/VOA via 8260B:

NASP21-MW73-0109 NASP21-MW73-0109-D TB

#### **OVERVIEW**

The sample set for CTO 056 NAS Pensacola, SDG BR004-003 consists of twenty (20) aqueous samples and one trip blank. Samples were analyzed for volatile organic compounds, manganese, lead, and zinc. One field duplicate pair was included in this SDG: NASP21-MW73-0109/NASP21-MW73-0109-D.

The samples were collected by TetraTech NUS from January 7th,2009 to January 8th, 2009 and analyzed by Environmental Conservation Laboratories Inc. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using EPA 8260B and 6010B analytical and reporting protocol. The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
- Holding times
- Initial/continuing calibrations
- Laboratory method blank results
- Field Duplicate Results
- Detection limits

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

#### VOA:

All data was compliant with quality control criteria.

#### Metals:

The following analytes were detected in the method/preparation blank 9A14005-BLK1 at the following maximum concentration:

AnalyteConcentrationAction LevelManganese (Mn)0.6ug/kg3.0ug/kgZinc (Zn)3.3ug/kg16.5ug/kg

An action level of 10X the maximum contaminant concentration (for Mn and Zn) was established to evaluate blank contamination. Dilution factors, %solids, and sample aliquots were taken into consideration during the application of all action levels. All samples in the SDG were affected. Positive results below the action level were qualified as undetected (U).

#### **Additional Comments:**

Positive results below the reporting limit (RL) but above the method detection limit (MDL) were qualified as estimated (J).

The initial calibration performed on JVGCMS2 on 12/30/08 had a percent relative standard deviation (RSD) greater than the quality control limit of 30% for methylene chloride. All samples in SDG were affected but none had positive results therefore, no validation action was warranted.

The continuing calibration performed on JVGCMS2 on 1/15/09 at 18:38 had a percent difference (%D) greater than the quality control limit of 25% for the following compounds: dichlorodifluoromethane, chloromethane, bromomethane, chloroethane, 1,1-dichloroethene, carbon tetrachloride, 1,2-dichloroethane, trans-1,3-dichloropropene, and tetrachloroethene. All samples in the SDG were affected but none had positive results therefore, no validation action was warranted.

#### **EXECUTIVE SUMMARY**

Laboratory Performance Issues: Method/preparation blank contamination which required qualification.

#### Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the Department of Defense (DoD) Quality Systems Manual (QSM) (January 2006). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the DoD QSM.

Megan Carson Chemist/Data Validator

Joseph A. Samchuck

Data Validation Quality Assurance Officer

#### Attachments:

Appendix A – Qualified Analytical Results Appendix B – Results as Reported by the Laboratory Appendix C – Support Documentation

# APPENDIX A QUALIFIED ANALYTICAL RESULTS

PROJ NO: 00583	NSAMPI F	NASP21-MW73-0109	9	NASP21-MW73-0109-D	3-0109-		TB		
	LAB ID	B900139-17		B900139-18			B900139-19		
	SAMP_DATE	1/8/2009		1/8/2009			1/8/2009		
	QC_TYPE	MN		MM			MN		
	UNITS	NG/L		UG/L			UG/L		
	PCT_SOLIDS								
	DUP_OF			NASP21-MW73-0109	3-0109				
PARAMETER		RESULT VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	i	0.35 U		0.35	U		0.35 U	U	
1,1,2,2-TETRACHLOROETHANE	ANE	0.19 U		0.19 U	U		0.19 U	U	
1,1,2-TRICHLOROETHANE		0.4 U		0.4 U	U		0.4 U	U	
1,1-DICHLOROETHANE		0.35 U		0.35 U	U		0.35 U	U	
1,1-DICHLOROETHENE		0.32 U		0.32 U	C		0.32 U	U	
1,2,4-TRICHLOROBENZENE		0.13 U		0.13 U	U		0.13 U	U	
1,2-DIBROMOETHANE		0.12 U		0.12 U	U		0.12 U	U	
1,2-DICHLOROBENZENE		0.4 U		0.4 U	U		0.4	0.4 U	
1,2-DICHLOROETHANE		0.44 U		0.44 U	U		0.44 U	c	
1,2-DICHLOROPROPANE		0.49 U		0.49 U	_		0.49 U	c	
1,3-DICHLOROBENZENE		0.35 U	-	0.35 U	C		0.35 U	C	
1,4-DICHLOROBENZENE		0.26 U		0.26 U	_		0.26 U	C	
2-CHLOROETHYL VINYL ETHER	THER	1.5 U		1.5 U	_		1.5	1.5 U	
BENZENE		0.27 U		0.27 U	C		0.27 U	Ċ	
BROMODICHLOROMETHANE	NE .	0.11 U		0.11 U	_		0.11 U	c	
BROMOFORM		0.26 U		0.26 U	C		0.26 U	C	
BROMOMETHANE		0.44 U		0.44 U	C		0.44 U	c	
CARBON TETRACHLORIDE		0.42 U		0.42 U	c		0.42 U	c	
CHLOROBENZENE		0.23 U		0.23 U	c		0.23 U	C	
CHLOROETHANE		0.34 U		0.34 U	c		0.34 U	C	
CHLOROFORM		0.4 U		0.4 U	C		0.4	0.4 U	
CHLOROMETHANE		0.4 U		0.4 U	c		0.4	0.4 U	
CIS-1,2-DICHLOROETHENE	111	0.31 U		0.31 U	C		0.31 U	C	
CIS-1,3-DICHLOROPROPENE	m ·	0.28 U		0.28 U	C		0.28 U	C	
DICHLORODIFLUOROMETHANE	HANE	0.13 U		0.13 U	_		0.13 U	C	
ETHYLBENZENE		100		110			0.28 U	C	
METHYL TERT-BUTYL ETHER	FR	0.23 U		0.23 U	_		0.23 U	C	
METHYLENE CHLORIDE		0.23 U		0.23 U	C		0.23 U	C	
TETRACHLOROETHENE		0.31 U		0.31 U	_		0.31 U	_	
TOLUENE		0.35 U		0.35 U	_		0.35 U	C	
TOTAL XYLENES		22		23			0.27 U	c	
TRANS-1,2-DICHLOROETHENE	ENE	0.46 U		0.46 U	_		0.46 U	C	
TRANS-1,3-DICHLOROPROPENE	PENE	0.27 U		0.27 U	C		0.27 U	Z U	
TRICHLOROETHENE		0.56 U		0.56 U	C		0.56 U	C	
TRICHLOROFLUOROMETHANE	ANE	0.41 U		0.41 U	C		0.41 U	<u>-</u>	
VINYL CHLORIDE		0.58 U		0.58 U	_		0.58 U	U	

1 of 1

PROJ_NO: 00583 SDG: BR004-003		NASP21-MW01-0109 B900139-15	1-0109		NASP21-MW04-0109 B900139-13	04-0109		NASP21-MW08-0109 B900139-12	/08-0109		NASP21-MW10-0109 B900139-10	N10-0109	
FRACTION: M	SAMP_DATE	1/8/2009			1/7/2009			1/7/2009		*	1/7/2009		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	γQL	QLCD	RESULT	VQL	QLCD
LEAD		24.1			70.5	01		45.7	7		1	106	
MANGANESE		153			8	3		11.6	6			2 U	Þ
ZINC		28.3			88.9	<u> </u>		951			1	175	

PROJ_NO: 00583 SDG: BR004-003 FRACTION: M MEDIA: WATER	NSAMPLE  LAB_ID  SAMP_DATE  QC_TYPE	NASP21-MW11-0109 B900139-11 1/7/2009 NM	0109	NASP21-MW21-0109 B900139-06 1/7/2009 NM	W21-0109		NASP21-MW28-0109 B900139-08 1/7/2009 NM	V28-0109		NASP21-MW34-0109 B900139-07 1/7/2009 NM	W34-0109 7	
	STINU	NG/L		UG/L			UG/L			UG/L		
	PCT_SOLIDS											
	DUP_OF											
PARAMETER		RESULT V	VQL QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
LEAD		348	-	7	7.5		103	3			2.5 U	
MANGANESE		6.1		97.7	7.7		21.8	8		1	187	
ZINC		423		15	15.4 U /	A	153	3		9	90.5	

ZINC	MANGANESE	LEAD	PARAMETER				MEDIA: WATER	FRACTION: M	SDG: BR004-003	PROJ_NO: 00583
				DUP_OF	PCT_SOLIDS	UNITS	QC_TYPE	SAMP_DATE	LAB_ID	NSAMPLE
144	20.2	23.1	RESULT			UG/L	NM	1/7/2009	B900139-04	NASP21-MW36-0109
			VQL QLCD							0109
_		1	RESULT			UG/L	NM	1/7/2009	B900139-03	NASP21-MW39-0109
13.1 U	2 U	10.4	δ						ω	W39-0109
Α	A		QLCD							
5	9.8	67.8	RESULT			UG/L	Z	1/7/2009	B900139-05	NASP21-MW43-0109
5.9 U	8	00	δ							/43-0109
➤			QLCD							
57.3	15	16.7	RESULT			UG/L	Z	1/7/2009	B900139-09	NASP21-MW44-0109
3	154	.7	VΩL							V44-0109
			QLCD							

PROJ_NO: 00583	NSAMPLE	NASP21-MW46R-0109	t-0109	NASP21-MW48-0109	V48-0109		NASP21-MW	1-MW61-0109		NASP21-MW69-0109	W69-0109	
SDG: BR004-003	LAB_ID	B900139-16		B900139-14			B900139-02			B900139-01	1	
FRACTION: M	SAMP_DATE	1/8/2009		1/7/2009			1/7/2009			1/7/2009		
MEDIA: WATER	QC_TYPE	MN		NM			MM			NM		
	STIND	UG/L		UG/L			UG/L			UG/L		
	PCT_SOLIDS											
	DUP_OF											
PARAMETER		RESULT V	VQL QLCD	RESULT	VQL	QLCD	RESULT	VΩL	QLCD	RESULT	VQL	QLCD
LEAD		5.7		9.7	.7		5.8	8		16	10.2	
MANGANESE		14.6		12	148		29.5	5			5.1	
ZINC		19		22.6	.6		7.	7.5 U	A		115	

PROJ_NO: 00583	NSAMPLE	NASP21-MW73-0109	3-0109		NASP21-MW73-0109-D	3-0109-[	
SDG: BR004-003	LAB_ID	B900139-17			B900139-18		
FRACTION: M	SAMP_DATE	1/8/2009			1/8/2009		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	NG/L			UG/L		
	PCT_SOLIDS						
	DUP_OF				NASP21-MW73-0109	3-0109	
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
LEAD		43.1			44.3		
MANGANESE		3.9			4.1		
ZINC		3.3 L	_	Α	3.1 U	C	Α

#### **APPENDIX B**

**RESULTS AS REPORTED BY THE LABORATORY** 

#### NASP21-MW73-0109

#### ORGANIC ANALYSIS DATA SHEET EPA 8260B

Laboratory:

ENCO Jacksonville

SDG:

BR004-003

Client:

Tetra Tech NUS (BR004)

Project:

CTO056 Pensacola

Matrix:

Ground Water

Laboratory ID:

B900139-17

File ID:

11AJ017.D

Sampled:

01/08/09 08:35

Prepared:

01/14/09 14:49

Analyzed:

01/16/09 00:08

Solids:

Preparation:

EPA 5030B MS

Initial/Final:

Batch:	<u>9A14018</u> Sequence: <u>BA04248</u>	Calibration:	0901001	Instrun	nent:	JVGCMS2
CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	MDL	MRL
75-71-8	Dichlorodifluoromethane	1	1.0	U	0.13	1.0
74-87-3	Chloromethane	1	1.0	U	0.40	1.0
75-01-4	Vinyl chloride	1	1.0	U	0.58	1.0
74-83-9	Bromomethane	1	1.0	U	0.44	1.0
75-00-3	Chloroethane	1	1.0	U	0.34	1.0
75-69-4	Trichlorofluoromethane	1	1.0	U	0.41	1.0
75-35-4	1,1-Dichloroethene	1	1.0	U	0.32	1.0
75-09-2	Methylene chloride	1	1.0	U	0.23	1.0
1634-04-4	Methyl-tert-Butyl Ether	1	1.0	U	0.23	1.0
156-60-5	trans-1,2-Dichloroethene	1	1.0	. U	0.46	1.0
75-34-3	1,1-Dichloroethane	1	1.0	U	0.35	1.0
156-59-2	cis-1,2-Dichloroethene	1	1.0	U	0.31	1.0
67-66-3	Chloroform	1	1.0	U	0.40	1.0
71-55-6	1,1,1-Trichloroethane	1	1.0	U	0.35	1.0
56-23-5	Carbon tetrachloride	1	1.0	U	0.42	1.0
107-06-2	1,2-Dichloroethane	1	1.0	U	0.44	1.0
71-43-2	Benzene	1	1.0	U	0.27	1.0
79-01-6	Trichloroethene	1	1.0	U	0.56	1.0
78-87-5	1,2-Dichloropropane	1	1.0	U	0.49	1.0
75-27-4	Bromodichloromethane	1	1.0	U	0.11	1.0
110-75-8	2-Chloroethyl Vinyl Ether	1	5.0	U	1.5	5.0
10061-01-5	cis-1,3-Dichloropropene	1	1.0	U	0.28	1.0
108-88-3	Toluene	1	1.0	U	0.35	1.0
10061-02-6	trans-1,3-Dichloropropene	1	1.0	U	0.27	1.0
79-00-5	1,1,2-Trichloroethane	1 .	1.0	U	0.40	1.0
127-18-4	Tetrachloroethene	1	1.0	U	0.31	1.0
106-93-4	1,2-Dibromoethane	1	1.0	U	0.12	1.0
108-90-7	Chlorobenzene	1	1.0	U	0.23	1.0
100-41-4	Ethylbenzene	1	100		0.28	1.0
75-25-2	Bromoform	1	1.0	U	0.26	1.0
79-34-5	1,1,2,2-Tetrachloroethane	1	1.0	U	0.19	1.0
541-73-1	1,3-Dichlorobenzene	1	1.0	U	0.35	1.0
106-46-7	1,4-Dichlorobenzene	1	1.0	U	0.26	1.0
95-50-1	1,2-Dichlorobenzene	1	1.0	U	0.40	1.0
120-82-1	1,2,4-Trichlorobenzene	1	1.0	U	0.13	1.0
NA	Xylenes (Total)	1	22		0.27	1.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	47	93	85 - 115	
Toluene-d8	50.0	50	101	85 - 120	
4-Bromofluorobenzene	50.0	60	119	75 - 120	

## ORGANIC ANALYSIS DATA SHEET

EPA 8260B

NASP21-MW73-0109

Laboratory:

ENCO Jacksonville

SDG:

BR004-003

Client:

Tetra Tech NUS (BR004)

Project:

CTO056 Pensacola

Matrix:

Ground Water

Laboratory ID:

B900139-17

File ID:

11AJ017.D

Sampled:

01/08/09 08:35

Prepared:

01/14/09 14:49

Analyzed:

01/16/09 00:08

Solids:

31700/07 00.33

Preparation:

EPA 5030B MS

Initial/Final:

Batch:	<u>9A14018</u>	Sequence:	BA04248	Calibration:	<u>0901001</u>	Instrument:	JVGCMS2
INTERNA	L STANDARD		AREA	RT	REF AREA	REF RT	Q
Pentafluoro	obenzene		222882	10.74	344699	10.78	
1,4-Difluor	robenzene		294432	11.42	515102	11.45	
Chlorobenz	zene-d5		259848	14.67	467903	14.69	
1,4-Dichlor	robenzene-d4		158023	16.92	240120	16.94	

^{*} Values outside of QC limits

#### NASP21-MW73-0109-D

# ORGANIC ANALYSIS DATA SHEET EPA 8260B

Laboratory:

ENCO Jacksonville

SDG:

BR004-003

Client:

Tetra Tech NUS (BR004)

Project:

CTO056 Pensacola

Matrix:

Ground Water

Laboratory ID:

B900139-18

File ID:

11AJ018.D

Sampled:

01/08/09 08:35

Prepared:

01/14/09 14:49

Analyzed:

01/16/09 00:39

Solids:

Preparation:

EPA 5030B MS

Initial/Final:

Batch:	<u>9A14018</u> Sequence: <u>BA04248</u>	Calibration:	<u>0901001</u>	Instrun	nent:	JVGCMS2
CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	MDL	MRL
75-71-8	Dichlorodifluoromethane	1	1.0	Ü	0.13	1.0
74-87-3	Chloromethane	1	1.0	U	0.40	1.0
75-01-4	Vinyl chloride	I	1.0	U	0.58	1.0
74-83-9	Bromomethane	1	1.0	U	0.44	1.0
75-00-3	Chloroethane	I	1.0	U	0.34	1.0
75-69-4	Trichlorofluoromethane	1	1.0	U	0.41	1.0
75-35-4	1,1-Dichloroethene	1	1.0	U	0.32	1.0
75-09-2	Methylene chloride	1	1.0	U	0.23	1.0
1634-04-4	Methyl-tert-Butyl Ether	1	1.0	U	0.23	1.0
156-60-5	trans-1,2-Dichloroethene	1	1.0	U	0.46	1.0
75-34-3	1,1-Dichloroethane	1	1.0	U	0.35	1.0
156-59-2	cis-1,2-Dichloroethene	1	1.0	U	0.31	1.0
67-66-3	Chloroform	1	1.0	U	0.40	1.0
71-55-6	1,1,1-Trichloroethane	1	1.0	U	0.35	1.0
56-23-5	Carbon tetrachloride	1	1.0	U	0.42	1.0
107-06-2	1,2-Dichloroethane	1	1.0	U	0.44	1.0
71-43-2	Benzene	1	1.0	U	0.27	1.0
79-01-6	Trichloroethene	1	1.0	· U	0.56	1.0
78-87-5	1,2-Dichloropropane	1	1.0	U	0.49	1.0
75-27-4	Bromodichloromethane	1	1.0	U	0.11	1.0
110-75-8	2-Chloroethyl Vinyl Ether	1	5.0	U	1.5	5.0
10061-01-5	cis-1,3-Dichloropropene	1	1.0	U	0.28	1.0
108-88-3	Toluene	1	1.0	U	0.35	1.0
10061-02-6	trans-1,3-Dichloropropene	1	1.0	U	0.27	1.0
79-00-5	1,1,2-Trichloroethane	1	1.0	U	0.40	1.0
127-18-4	Tetrachloroethene	1	1.0	U	0.31	1.0
106-93-4	1,2-Dibromoethane	1	1.0	U .	0.12	1.0
108-90-7	Chlorobenzene	1	1.0	U :	0.23	1.0
100-41-4	Ethylbenzene	1	110		0.28	1.0
75-25-2	Bromoform	1	1.0	U	0.26	1.0
79-34-5	1,1,2,2-Tetrachloroethane	1	1.0	U	0.19	1.0
541-73-1	1,3-Dichlorobenzene	1	1.0	U	0.35	1.0
106-46-7	1,4-Dichlorobenzene	1	1.0	U	0.26	1.0
95-50-1	1,2-Dichlorobenzene	1	1.0	U	0.40	1.0
120-82-1	1,2,4-Trichlorobenzene	1	1.0	U	0.13	1.0
NA	Xylenes (Total)	1	23		0.27	1.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	46	92	85 - 115	
Toluene-d8	50.0	46	91	85 - 120	
4-Bromofluorobenzene	50.0	57	115	75 - 120	

NASP21-MW73-0109-D

Laboratory:

ENCO Jacksonville

SDG:

BR004-003

Client:

Tetra Tech NUS (BR004)

Project:

Matrix:

Ground Water

Laboratory ID:

B900139-18

CTO056 Pensacola

Sampled:

Prepared:

File ID:

11AJ018.D

01/08/09 08:35

01/14/09 14:49

Analyzed:

01/16/09 00:39

Solids:

Preparation:

EPA 5030B MS

Initial/Final:

Batch:	<u>9A14018</u>	Sequence:	BA04248	Calibration:	<u>0901001</u>	Instrument:	JVGCMS2
INTERNA	L STANDARD		AREA	RT	REF AREA	REF RT	Q
Pentafluoro	obenzene		211707	10.75	344699	10.78	
1,4-Difluor	robenzene		308577	11.42	515102	11.45	
Chlorobenz	zene-d5		267368	14.66	467903	14.69	
1,4-Dichlor	robenzene-d4		156841	16.92	240120	16.94	

^{*} Values outside of QC limits

#### Trip Blank

## ORGANIC ANALYSIS DATA SHEET EPA 8260B

Laboratory:

ENCO Jacksonville

SDG:

BR004-003

Client:

Tetra Tech NUS (BR004)

Project:

CTO056 Pensacola

Matrix:

Ground Water

Laboratory ID:

B900139-19

File ID:

11AJ016.D

Sampled:

01/08/09 00:00

Prepared:

01/14/09 14:49

Analyzed:

01/15/09 23:38

Solids:

Preparation:

**EPA 5030B MS** 

Initial/Final:

Batch:	<u>9A14018</u> Sequence: <u>BA04248</u>	Calibration:	0901001	Instrui	nent:	JVGCMS2
CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	MDL	MRL
75-71-8	Dichlorodifluoromethane	1	1.0	U	0.13	1.0
74-87-3	Chloromethane	1	1.0	U	0.40	1.0
75-01-4	Vinyl chloride	1	1.0	U	0.58	1.0
74-83-9	Bromomethane	1	1.0	U	0.44	1.0
75-00-3	Chloroethane	1	1.0	U	0.34	1.0
75-69-4	Trichlorofluoromethane	1	1.0	U	0.41	1.0
75-35-4	1,1-Dichloroethene	1	1.0	υ	0.32	1.0
75-09-2	Methylene chloride	1	1.0	U	0.23	1.0
1634-04-4	Methyl-tert-Butyl Ether	1	1.0	U	0.23	1.0
156-60-5	trans-1,2-Dichloroethene	1	1.0	U	0.46	1.0
75-34-3	1,1-Dichloroethane	1	1.0	U	0.35	1.0
156-59-2	cis-1,2-Dichloroethene	1	1.0	U	0.31	1.0
67-66-3	Chloroform	1	1.0	U	0.40	1.0
71-55-6	1,1,1-Trichloroethane	1	1.0	U	0.35	1.0
56-23-5	Carbon tetrachloride	1	1.0	U	0.42	1.0
107-06-2	1,2-Dichloroethane	Ī	1.0	U	0.44	1.0
71-43-2	Benzene	1	1.0	U	0.27	1.0
79-01-6	Trichloroethene	1	1.0	U	0.56	1.0
78-87-5	1,2-Dichloropropane	1	1.0	U	0.49	1.0
75-27-4	Bromodichloromethane	1	1.0	U	0.11	1.0
110-75-8	2-Chloroethyl Vinyl Ether	1	5.0	U	1.5	5.0
10061-01-5	cis-1,3-Dichloropropene	1	1.0	U	0.28	1.0
108-88-3	Toluene	1	1.0	U	0.35	1.0
10061-02-6	trans-1,3-Dichloropropene	1	1.0	U	0.33	1.0
79-00-5	1,1,2-Trichloroethane	1	1.0	U	0.40	1.0
127-18-4	Tetrachloroethene	1	1.0	U	0.31	1.0
106-93-4	1,2-Dibromoethane	1	1.0	U	0.12	1.0
108-90-7	Chlorobenzene	1	1.0	U	0.12	1.0
100-41-4	Ethylbenzene	1	1.0	U	0.23	1.0
75-25-2	Bromoform	i	1.0	U	0.26	1.0
79-34-5	1,1,2,2-Tetrachloroethane	1	1.0	U	0.19	1.0
541-73-1	1,3-Dichlorobenzene	1	1.0	U	0.19	
106-46-7	1,4-Dichlorobenzene	1	1.0	U	0.33	1.0
95-50-1	1,2-Dichlorobenzene	1 1	1.0	U	0.40	
120-82-1	1,2,4-Trichlorobenzene		1.0	U	0.40	1.0
NA	Xylenes (Total)	1 1	1.0	U	0.13	1.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	45	91	85 - 115	
Toluene-d8	50.0	47	95	85 - 120	
4-Bromofluorobenzene	50.0	55	109	75 - 120	

## ORGANIC ANALYSIS DATA SHEET

EPA 8260B

Trip Blank

Laboratory:

ENCO Jacksonville

SDG:

BR004-003

Client:

Tetra Tech NUS (BR004)

Project:

CTO056 Pensacola

Matrix:

Ground Water

Laboratory ID:

B900139-19

File ID:

<u>11AJ016.D</u>

Sampled:

01/08/09 00:00

Prepared:

01/14/09 14:49

Analyzed:

01/15/09 23:38

Solids:

01/00/07 00.00

Preparation:

EPA 5030B_MS

Initial/Final:

Batch:	<u>9A14018</u>	Sequence:	BA04248	Calibration:	<u>0901001</u>	Instrument:	JVGCMS2
INTERNA	L STANDARD		AREA	RT	REF AREA	REF RT	Q
Pentafluor	obenzene		222149	10.74	344699	10.78	
1,4-Difluo	robenzene		308429	11.42	515102	11.45	
Chloroben	zene-d5		273042	14.67	467903	14.69	
1,4-Dichlo	robenzene-d4		159471	16.92	240120	16.94	

^{*} Values outside of QC limits

NASP21-MW01-0109

Laboratory: ENCO Jacksonville

SDG: <u>BR004</u>-003

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix:

Ground Water

Laboratory ID: B900139-15

File ID: <u>011509a-040</u>

Sampled: 01/08/09 09:20

Prepared: 01/14/09 10:25

Analyzed: 01/16/09 11:13

Solids: <u>0.00</u>

Preparation: EPA 200.7

Initial/Final: 50 mL / 50 mL

Batch: 9A14005

Sequence:

BA04251

Calibration: 0901008

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	24.1	1		2.5	10.0	EPA 6010B
7439-96-5	Manganese	153	1		0.5	10.0	EPA 6010B
7440-66-6	Zinc	28.3	1		2.4	20.0	EPA 6010B

NASP21-MW04-0109

Laboratory: ENCO Jacksonville

SDG: <u>BR004-003</u>

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix:

Ground Water

Laboratory ID: B900139-13

File ID: 011509a-038

Sampled:

01/07/09 09:50

Prepared: 01/14/09 10:25

Analyzed: 01/16/09 11:08

Solids: 0.00 Preparation: EPA 200.7

Initial/Final: 50 mL / 50 mL

Batch: 9A14005 Sequence:

BA04251

Calibration: 0901008

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	70.5	1		2.5	10.0	EPA 6010E
7439-96-5	Manganese	8.0	1	J	0.5	10.0	EPA 6010E
7440-66-6	Zinc	. 88.9	1		2.4	20.0	EPA 6010E

NASP21-MW08-0109

Laboratory: ENCO Jacksonville

SDG: BR004-003

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix: Ground Water

Laboratory ID: B900139-12

File ID: 011509a-037

Sampled: 01/07/09 10:25

Prepared: 01/14/09 10:25

Analyzed: 01/16/09 11:06

Solids: <u>0.00</u>

Preparation: EPA 200.7

Initial/Final: 50 mL / 50 mL

Batch: 9A14005 Sequence: BA04251

Calibration: 0901008

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	45.7	1		2.5	10.0	EPA 6010E
7439-96-5	Manganese	11.6	I		.0.5	10.0	EPA 6010E
7440-66-6	Zinc	951	1		2.4	20.0	EPA 6010E

NASP21-MW10-0109

Laboratory: ENCO Jacksonville

SDG: <u>BR004-003</u>

Calibration: 0901008

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix: Ground Water

Laboratory ID: B900139-10

File ID: 011509a-032

Prepared: 01/14/09 10:25

Sampled: 01/07/09 11:40

BA04251

Analyzed: <u>01/16/09 10:55</u>

Solids: <u>0.00</u>

Batch: <u>9A14005</u>

Sequence:

Preparation: EPA 200.7

Initial/Final: 50 mL / 50 mL

Instrument: <u>JICP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	106	1		2.5	10.0	EPA 6010B
7439-96-5	Manganese	2.0	1	J	0.5	10.0	EPA 6010B
7440-66-6	Zinc	175	1		2.4	20.0	EPA 6010B

NASP21-MW11-0109

Laboratory: ENCO Jacksonville

SDG: BR004-003

Calibration: 0901008

Client:

Tetra Tech NUS (BR004)

Sequence:

Project: CTO056 Pensacola

Matrix: Ground Water

Laboratory ID: B900139-11

File ID: 011509a-033

Sampled: 01/07/09 11:05

Prepared: 01/14/09 10:25

Analyzed: 01/16/09 10:57

Solids:

BA04251

Initial/Final: 50 mL / 50 mL

Batch: 9A14005

0.00

Preparation: EPA 200.7

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	348	1		2.5	10.0	EPA 6010B
7439-96-5	Manganese	6.1	1	J	0.5	10.0	EPA 6010B
7440-66-6	Zinc	423	1		2.4	20.0	EPA 6010B

NASP21-MW21-0109

Laboratory: ENCO Jacksonville

SDG: <u>BR004-003</u>

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix: Ground Water

Laboratory ID: B900139-06

File ID: <u>011509a-028</u>

Sampled: <u>01/07/09 15:05</u>

Prepared: 01/14/09 10:25

Analyzed: 01/16/09 10:46

Solids: <u>0.00</u>

Preparation: EPA 200.7

Initial/Final: 50 mL / 50 mL

Batch: 9A14005

Sequence:

BA04251

Calibration: 0901008

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	7.5	1	J	2.5	10.0	EPA 6010B
7439-96-5	Manganese	97.7	1		0.5	10.0	EPA 6010B
7440-66-6	Zinc	15.4	1	J	2.4	20.0	EPA 6010B

NASP21-MW28-0109

Laboratory: ENCO Jacksonville

SDG: BR004-003

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix: Ground Water

Laboratory ID: <u>B900139-08</u>

File ID: <u>011509a-030</u>

Sampled: <u>01/07/09 13:20</u>

Prepared: 01/14/09 10:25

Analyzed: 01/16/09 10:50

Solids: <u>0.00</u>

Preparation: <u>EPA 200.7</u>

Initial/Final: 50 mL / 50 mL

Batch: 9A14005

Sequence:

BA04251

Calibration: 0901008

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	103	1		2.5	10.0	EPA 6010B
7439-96-5	Manganese	21.8	1		0.5	10.0	EPA 6010B
7440-66-6	Zinc	153	1		2.4	20.0	EPA 6010B

NASP21-MW34-0109

Laboratory: ENCO Jacksonville

SDG: <u>BR004-003</u>

Calibration: 0901008

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix: Ground Water Laboratory ID: B900139-07

File ID: 011509a-029

Sampled: 01/07/09 14:00

Batch: 9A14005

Prepared: 01/14/09 10:25

Analyzed: 01/16/09 10:48

Solids: <u>0.00</u>

Preparation: EPA 200.7 BA04251

Initial/Final: 50 mL / 50 mL

Sequence:

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	10.0	1	U	2.5	10.0	EPA 6010B
7439-96-5	Manganese	187	1		0.5	10.0	EPA 6010B
7440-66-6	Zinc	90.5	1		2.4	20.0	EPA 6010B

NASP21-MW36-0109

Laboratory: ENCO Jacksonville

SDG: <u>BR004-003</u>

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix: Ground Water

Laboratory ID: <u>B900139-04</u>

File ID: 011509a-026

Sampled: 01/07/09 12:15

Prepared: 01/14/09 10:25

Analyzed: 01/16/09 10:41

Solids: <u>0.00</u>

Preparation: EPA 200.7

Initial/Final: 50 mL / 50 mL

Batch: 9A14005

Sequence:

BA04251

Calibration: 0901008

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDĹ	MRL	Method
7439-92-1	Lead	23.1	1		2.5	10.0	EPA 6010B
7439-96-5	Manganese	20.2	1		0.5	10.0	EPA 6010B
7440-66-6	Zinc	144	1		2.4	20.0	EPA 6010B

NASP21-MW39-0109

Laboratory: ENCO Jacksonville

SDG: BR004-003

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix: Ground Water

Laboratory ID: B900139-03

File ID: <u>011509a-025</u>

Sampled: 01/07/09 09:35

Prepared: 01/14/09 10:25

Analyzed: 01/16/09 10:39

Solids: <u>0.00</u>

Preparation: EPA 200.7

Initial/Final: 50 mL / 50 mL

Batch: 9A14005

Sequence:

BA04251

Calibration: 0901008

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	10.4	1		2.5	10.0	EPA 6010B
7439-96-5	Manganese	2.0	1	J	0.5	10.0	EPA 6010B
7440-66-6	Zinc	13.1	1	J	2.4	20.0	EPA 6010B

NASP21-MW43-0109

Laboratory: ENCO Jacksonville

SDG: <u>BR004-003</u>

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix: Ground Water

Laboratory ID: B900139-05

File ID: 011509a-027

Sampled: 01/07/09 15:55

Prepared: 01/14/09 10:25

BA04251

Analyzed: 01/16/09 10:43

Solids: <u>0.00</u>

Initial/Final: 50 mL / 50 mL

Batch: 9A14005

Sequence:

Preparation: EPA 200.7

Calibration: 0901008

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	67.8	1		2.5	10.0	EPA 6010B
7439-96-5	Manganese	9.8	1	J	0.5	10.0	EPA 6010E
7440-66-6	Zinc	5.9	1	J	2.4	20.0	EPA 6010E

NASP21-MW44-0109

Laboratory: ENCO Jacksonville

SDG: BR004-003

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix: Ground Water

Laboratory ID: B900139-09

File ID: 011509a-031

Sampled: 01/07/09 12:15

Prepared: <u>01/14/09 10:25</u>

Analyzed: 01/16/09 10:52

Solids: <u>0.00</u>

Preparation: EPA 200.7

Initial/Final: 50 mL / 50 mL

Batch: 9A14005

Sequence: BA04251

Calibration: 0901008

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	16.7	1		2.5	10.0	EPA 6010E
7439-96-5	Manganese	154	1		0.5	10.0	EPA 6010E
7440-66-6	Zinc	57.3	1		2.4	20.0	EPA 6010E

NASP21-MW46R-0109

Instrument: JICP2

Laboratory: ENCO Jacksonville

SDG: <u>BR004-003</u>

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix: Ground Water

Laboratory ID: B900139-16

File ID: <u>011509a-041</u>

Sampled: 01/08/09 08:30

Prepared: <u>01/14/09 10:25</u>

Analyzed: 01/16/09 11:15

Solids: <u>0.00</u>

Preparation: EPA 200.7

Initial/Final: 50 mL / 50 mL

Batch: 9A14005 Sequence: Calibration: 0901008 BA04251

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	5.7	1	J	2.5	10.0	EPA 6010B
7439-96-5	Manganese	14.6	1		0.5	10.0	EPA 6010B
7440-66-6	Zinc	19.0	1	J	2.4	20.0	EPA 6010B

NASP21-MW48-0109

Laboratory: ENCO Jacksonville

Client: Tetra Tech NUS (BR004)

SDG: BR004-003

Calibration: 0901008

Project: CTO056 Pensacola

Matrix: Ground Water

Laboratory ID: B900139-14

File ID: 011509a-039

Sampled: 01/07/09 16:45

Prepared: 01/14/09 10:25

Sequence:

Analyzed: 01/16/09 11:10

Solids: 0.00

Initial/Final: 50 mL / 50 mL

Batch: 9A14005

Preparation: EPA 200.7

BA04251

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	9.7	1	J	2.5	10.0	EPA 6010B
7439-96-5	Manganese	148	1		0.5	10.0	EPA 6010B
7440-66-6	Zinc	22.6	1		2.4	20.0	EPA 6010B

NASP21-MW61-0109

Laboratory: ENCO Jacksonville

SDG: BR004-003

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix: Ground Water

nd Water Laboratory ID: B900139-02

File ID: <u>011509a-024</u>

Sampled: 01/07/09 10:35

Prepared: 01/14/09 10:25

Analyzed: 01/16/09 10:36

Solids: <u>0.00</u>

BA04251

Anaryz

Calibration: 0901008

Initial/Final: 50 mL / 50 mL

Batch: 9A14005

Sequence:

Preparation: <u>EPA 200.7</u>

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CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	5.8	1	J	2.5	10.0	EPA 6010E
7439-96-5	Manganese	29.5	1		0.5	10.0	EPA 6010E
7440-66-6	Zinc	7.5	1	J	2.4	20.0	EPA 6010E

NASP21-MW69-0109

Laboratory: ENCO Jacksonville

SDG: BR004-003

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix: Ground Water

Laboratory ID: B900139-01

File ID: <u>011509a-019</u>

Sampled: <u>01/07/09 11:25</u>

Prepared: 01/14/09 10:25

Analyzed: 01/16/09 10:17

Solids: <u>0.00</u>

Preparation: EPA 200.7

Initial/Final: 50 mL / 50 mL

Batch: 9A14005

Sequence:

BA04251

Calibration: 0901008

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	10.2	1		2.5	10.0	EPA 6010B
7439-96-5	Manganese	5.1	. 1	J	0.5	10.0	EPA 6010B
7440-66-6	Zinc	115	1	-	2.4	20.0	EPA 6010B

NASP21-MW73-0109

Laboratory: ENCO Jacksonville

SDG: <u>BR004-003</u>

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix: Ground Water

Laboratory ID: B900139-17

File ID: <u>011509a-042</u>

Sampled: 01/08/09 08:35

Prepared: 01/14/09 10:25

Analyzed: 01/16/09 11:17

Solids: <u>0.00</u>

Preparation: EPA 200.7

Initial/Final: 50 mL / 50 mL

Batch: 9A14005

Sequence:

BA04251

Calibration: 0901008

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	43.1	1		2.5	10.0	EPA 6010B
7439-96-5	Manganese	3.9	1	J	. 0.5	10.0	EPA 6010B
7440-66-6	Zinc	3.3	1	J	2.4	20.0	EPA 6010B

NASP21-MW73-0109-D

Laboratory: ENCO Jacksonville

SDG: <u>BR004-003</u>

Client: Tetra Tech NUS (BR004)

Project: CTO056 Pensacola

Matrix: Ground Water

Laboratory ID: B900139-18

File ID: <u>011509a-043</u>

Sampled: <u>01/08/09 08:35</u>

Prepared: 01/14/09 10:25

Analyzed: 01/16/09 11:20

Solids: <u>0.00</u>

Preparation: EPA 200.7

01714707 10.22

Initial/Final: 50 mL / 50 mL

Batch: 9A14005

_ . . . . . .

Sequence:

BA04251

Calibration: 0901008

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	MDL	MRL	Method
7439-92-1	Lead	44.3	1		2.5	10.0	EPA 6010E
7439-96-5	Manganese	4.1	1	J	0.5	10.0	EPA 6010E
7440-66-6	Zinc	3.1	1	J	2.4	20.0	EPA 6010E

# APPENDIX C LEAD POPULATION ASSESSMENT

#### Introduction

This document describes the statistical techniques used to determine whether the lead (Pb) found in NASP Site 22 groundwater is attributable to background or site contamination.

#### **Source Data**

All sampling events which tested groundwater samples for Pb at Site 22 were are in the analyses (spanning a time frame of April, 1997 to January 2009). The dataset consists of 119 samples, split into seven different sampling events. Of these seven events, five contain a sufficient number of samples to perform the required statistics (at least 107 samples). The five sampling events are April 1997, June 2000, December 2004, May 2007, and January 2009.

#### Approach

The approach to the evaluation of Pb in groundwater consists of the following elements, which are discussed in further detail below:

Population modeling – this technique evaluates 1) the statistical distribution of the Pb through calculation of the best measure of central tendency, which can then be used as a point comparison between events to assess if a change in overall Pb concentration is occurring; 2) a statistical comparison of the statistical distribution of Pb to define whether there is a significant difference between sampling events; 3) An evaluation of the trend of the central tendency measurements between events to assess if there is an overall decrease in Pb across the site 4) an outlier analysis of each sampling event using normal probability plots to define break points in slope that indicate samples that fall out of the general distribution and can be considered outliers.

Geochemical Assessment – this technique uses linear regression to assess the degree of correlation between Pb and Mn, a commonly occurring but non-site related inorganic. Zn (another independent non-site related inorganic) was used to determine if there was a correlation with Mn and to define if there was non-ordinary Mn enrichment. Correlations between Pb and Mn would suggest that the Pb may be naturally occurring, whereas low correlations between the two would suggest that the Pb is site-related.

#### Population Modeling:

Population modeling was performed to Site 22 to explicate 1) if a significant difference exists between sampling events; 2) Is there a temporal difference between the measures of central tendency over time?; and 3) using the central tendency for each sampling event, is there an overall trend?

The statistical approach is designed to answer a number of questions, which, when answered, would elucidate whether the Pb found is background or true contamination.

The premise behind defining internal structure to the data is that contaminated sites exhibit biased sampling and generally exhibit positively-skewed lognormal or gamma distributions (EPA, 1997), which is caused by the presence of true contamination (elevated values) along with unimpacted samples. Generally, the identification and elimination of these elevated values (outliers) will result in a less skewed lognormal or a normal distribution. Therefore, if outliers can be identified in the Site 22 dataset, the evaluation results can provide a relative basis for targeting true contamination that should be used to evaluate remedial path(s) forward. The distribution and 95% Upper Confidence Limit (UCL) measure of central tendency of all the sampling events datasets was determined using the EPA software ProUCL.

Determining the presence/absence of a trend over time in the measures of central tendency of the individual datasets is useful to assess the historical changes and can provide a predictive tool. To determine the appropriate measure of central tendency, the EPA software ProUCL at a 95% confidence level was used. Determination of the presence of a trend in the measures of central tendency over time was performed using the non-parametric Mann-Kendall test. Similar to defining the presence or absence of a trend, determining the presence/absence of a significant difference is used to assess the elevated lead occurrence over time, and was performed using the Kolmogorov-Smirnoff statistical test at a significance level of 95%.

#### Geochemical Analysis:

Linear regression can be used to define the presence and degree of a correlative relationship between two variables. In this case, the objective of the analysis was to determine if a relationship exists between Pb (a potential site-related parameter) and a non-site related but geochemically similar inorganic (Mn) in groundwater at Site 22. The theory behind the use of linear regression to define a correlation between geochemically similar parameters is defined in Thorbjornsen and Myers (2007), and is consistent with the techniques included in Guidance for Environmental Background Analysis (NAVFAC, 2004) for soil and sediments. In this analysis, linear regression was used to determine if a correlative relationship exists between Pb and Mn in groundwater. The premise of the analysis is that Mn is not a site contaminant, and therefore a correlation between Pb and Mn would suggest that elevated Pb (above regulatory thresholds) is due to natural geochemical occurrence. The potential for Mn outliers (samples enriched with respect to Mn) was tested through analysis of its correlative occurrence with Zn, another non-site related but geochemically similar inorganic.

#### **Statistical Analysis**

This section will supply a short summary of the statistical tests applied to Site 22.

#### Population Modeling

- 1. All estimated results (J) were eliminated from dataset (is this true?)
- 2. All undetected results (U) were divided into half

- 3. Each sampling event was run through ProUCL to define the internal structure and the central tendency of the event
- 4. All lead concentrations were log transformed due to the internal lognormal-gamma structure illuminated by ProUCL.
- 5. Normal probability plots were created for each event's log-normal sampling data distribution for the definition of outliers.
- 6. Trend analysis was performed using the changes in the 95% UCLs measures of central tendencies –the technique utilized the Mann-Kendall (MK) analysis at a confidence level of 80%.
- 7. When enough samples were in the datasets (at least 10 samples are needed), sequential population differential testing the Kolmogorov-Smirnov (KS) tests these tests provide a measure of the probability of the lack of a significant difference (or conversely a lack of similarities) of the distributions between data sets a probability level of 90% is used in these analyses to indicate unequivocal similarity or difference;

#### Geostatistical Modeling:

- 1. All estimated results (J) were used as true values for the Pb, Mn, and Zn datasets
- 2. All undetected results (U) were divided into half
- 3. The raw data was plotted
  - a. Zn vs Mn
  - b. Pb vs Mn
- 4. The raw data was then Log-Transformed and plotted
  - a. Zn vs Mn
  - b. Pb vs Mn

#### Results

Table 1: Results from ProUCL.

	Central Tendency for	
Sampling Event	Pb (ug/L)	UCL Distributions
Apr-97	49.83	Lognormal-gamma
Jun-00	76.97	No discernable distribution
Feb-03	N/A	Lognormal-gamma
Dec-04	154.4	Lognormal-gamma
Mar-05	771.3	Lognormal-gamma
May-07	125.7	Lognormal-gamma
Jan-09	91.05	Lognormal-gamma

The results indicate that in general the best measure of central tendency can be calculated from a log-normal assumption of data distribution. The range of the central tendencies using the log-normal distributions is 49.83 ug/L - 771.3 ug/L. Table 2 presents the trend analysis results utilizing these values:

Table 2: Central Tendency MK Trend Analysis Results at 80% Confidence

Mann Kendall Statistic (S) =	5.0
Number of Rounds (n) =	6

Average =	211.54
Standard Deviation =	276.674
Coefficient of Variation(CV)=	1.308
Trend ≥ 80% Confidence Level	No Trend
Trend ≥ 90% Confidence Level	No Trend
Stability Test, If No Trend Exists at	CV > 1
80% Confidence Level	NON-STABLE

The MK analysis indicates there is no defineable trend in the measures of central tendency, therefore there are no significant temporal changes in overall Pb concentrations during the sampling history, and indicating no significant attenuation or augmentation is occurring. Additionally, the analysis indicates that there is significant variation in the data scatter, suggesting that perturbations in natural environmental factors (such as seasonal changes in water levels) are impacting the resulting Pb concentrations.

Table 3 presents that analysis used to determine if there is a statistically significant difference (95% confidence) in the distribution of Pb between sampling events:

Table3: Results from Kolmogorov-Smirnov test

	Significant difference @ 95%
Sample Events Compared	confidence?
April 1997 vs. June 2000	No
April 97 vs. December 2004	No
April 1997 vs. May 2007	No
April 1997 vs. January 2009	No
June 2000 vs. December 2004	No
June 2000 vs. May 2007	No
June 2000 vs. Jan 2009	No
December 2004 vs. May 2007	No
December 2004 vs. January 2009	No
May 2007 vs. January 2009	No

As noted, there are no significant differences between the Pb distributions over the sampling history. This clearly indicates that while no decrease in Pb in groundwater is occurring, no significant additional source of Pb is being introduced.

The cumulative probability plots for each sampling event are shown in Figures 1 through 7:

Figure 1: Cumulative Normal Probability Plot for all Pb data

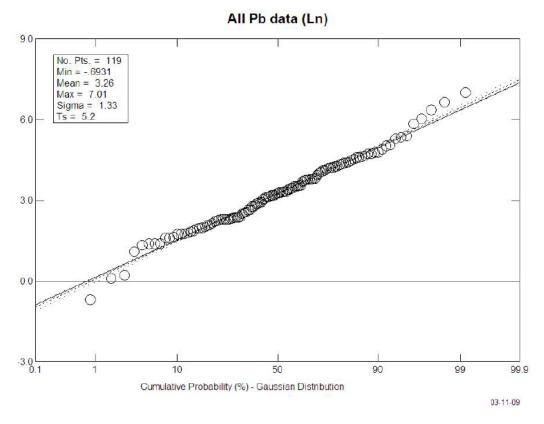


Figure 2. Cumulative Normal Probability Plot for April 1997

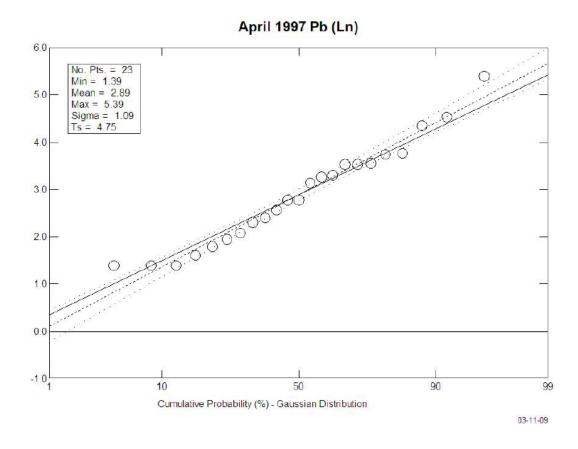


Figure 3. Cumulative Normal Probability Plot for Feb 2003

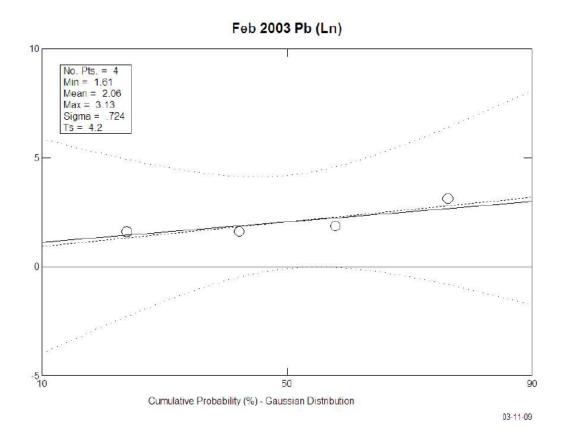


Figure 4. Cumulative Normal Probability Plot for Dec 2004

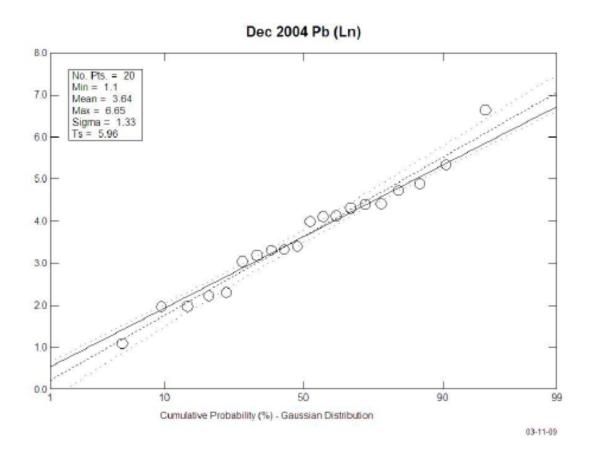


Figure 5. Cumulative Normal Probability Plot for March 2005

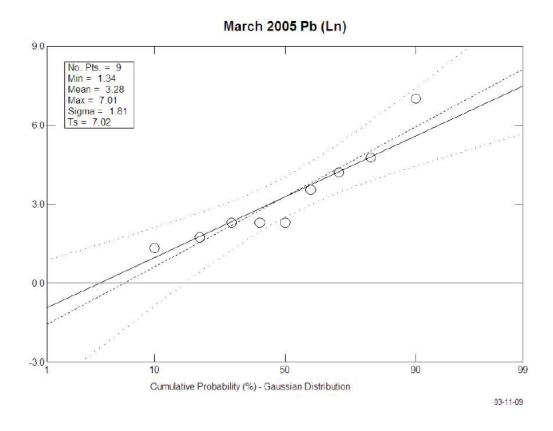


Figure 6. Cumulative Normal Probability Plot for May 2007

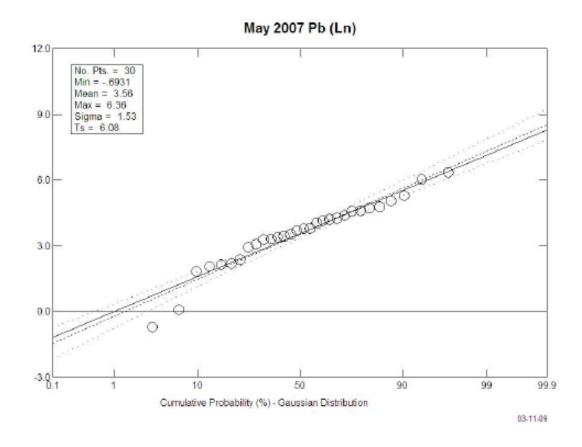
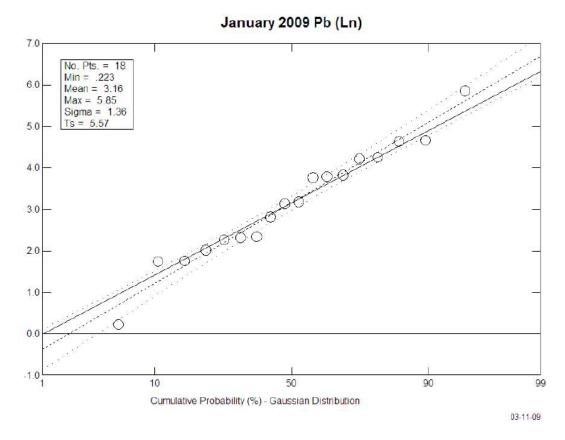


Figure 7. Cumulative Normal Probability Plot for Jan 2009



The results of the normal probability plot analyses indicate the following samples can be considered as outliers from the log-normal distribution:

Sampling_Event	Raw_Pb_Outliers	Location
Apr-97	220	MW-02
Jun-00	152	MW-11
Feb-03	N/A	N/A
Dec-04	769	MW-11
Mar-05	N/A	N/A
May-07	416, 579	MW-11, MW-04
Jan-09	348	MW-11

Well MW-11 has been consistently identified as an outlier in both the cumulative normal probability plots and the KS difference testing. Well MW-11 is located in the northern section of Site 22 along with wells MW-02 and MW-04. The continuous identification of MW-11 as an outlier suggests a continuing source area on the site.

The geochemical association results to determine the presence or absence of a correlation between Pb, Mn, and Zn are shown in Figures 8 through 11:

Figure 8: Geochemical results (Raw Data Plots) for Zn vs. Mn

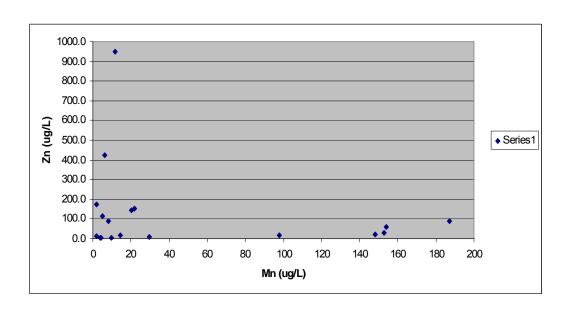
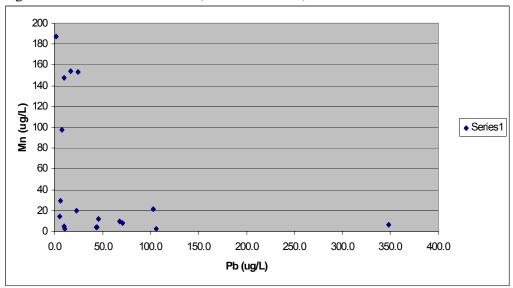


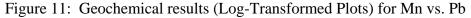
Figure 9. Geochemical results (Raw Data Plots) for Mn vs. Pb

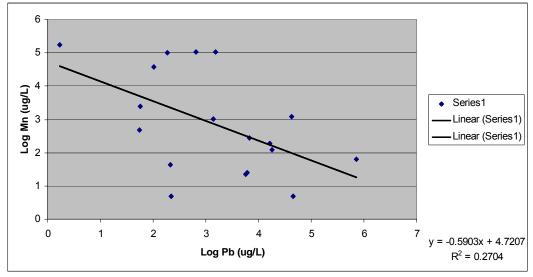


8
7
6
7
8
7
6
9
9
1
5
Series1
Linear (Series1)

1
1
2
3
4
5
6
y = 0.0227x + 3.6399
R² = 0.0004

Figure 10: Geochemical results (Log-Transformed Plots) for Zn vs. Mn





The geochemical analyses indicate there is no significant correlation between Pb, Mn, and Zn.

#### **Conclusions**

The internal structure of the data clarified by ProUCL exhibited a positively-skewed lognormal or gamma distributions (EPA, 1997), which could be indicative of true contamination (elevated values) along with unimpacted samples, or it could represent a natural environmental distribution in which several samples are normally elevated due to natural variation. The MK analysis did not indicate a significant trend at 80% confidence

in the measures of central tendency over time, indicating no significant attenuation or augmentation of Pb. The degree of data variation using the CV suggests statistical instability, or a complex geochemical system whose variation, given the apparent lack of attenuation or augmentation, is likely due to natural environmental conditions (for example, seasonal fluctuations) and can result in a large natural variation in Pb. The results of the KS population distribution difference testing revealed no significant difference between the sampling events, again suggesting that the overall statistical pattern of Pb occurrence is stable. Outlier analysis using cumulative normal probability plots of log-transformed data indicate consistently identified outliers, suggesting presence areas that are relatively enriched or depleted with respect to Pb. Geochemical association results, shown on the included graphs, indicate that 1) there is no significant correlation between Mn and Zn in Site 22 groundwater; and 2) there is no significant correlation between Mn and Pb in Site 22 groundwater. The conclusion is that the Pb concentrations could in fact be site-related, and should be evaluated and managed consistent with the exposure potential to affected receptors (for example, meeting the MCL (if human ingestion is anticipated, or meeting the surface water standard if no human exposure potential is validated).

It is recommended that continued sampling be performed for Pb only, as the geochemical association between other inorganics is unremarkable. The Pb distributions should be subjected to central tendency evaluation, central tendency trend analysis, and population differential analysis with the immediate previous sampling event. Pb occurrence should be evaluated and managed with the appropriate site exposure scenario. In the event a concrete comparison of the Site 22 Pb concentrations should be allowed a point-break evaluation, it is recommended that a single upgradient, unimpacted location well inland from tidal influences in the shallow surficial aquifer be chosen as the representative comparator.

# Lead in Groundwater - Installation Restoration (IR) Site 21, Naval Air Station Pensacola (NASP), Pensacola, Florida

### **Background and Purpose:**

Lead concentrations in groundwater samples collected from IR Site 21 are elevated relative to NASP background (1.6 ppb, data presented in the Site 1 RI Report). However, there is not an apparent site activity or source for the elevated lead, and lead in groundwater has historically been higher near the waterfront with Pensacola Bay (see the IR Site 39 RI Report, 2004). Therefore, a statistical evaluation of the elevated lead was performed to determine the presence or absence of a statistical internal structure within the data (i.e. Presence of outliers that may represent contamination) and how the data relates to the other waterfront sites. Because of the lack of accompanying manganese data (an inorganic that is similar geochemically similar to lead), a geochemical correlation approach could not performed. Instead, population modeling was performed, with the general objectives to define a) if there were lead outliers present at Site 21; b) if there were significant differences between sampling events; and c) using an appropriate measure of central tendency for each sampling event, whether a temporal trend in the data exists.

#### **Source Data:**

The Site 21 dataset is comprised of a total of 93 groundwater samples. For this analysis the Site 21 dataset was segregated into five separate sampling events (June 2000 [20 samples], February 2003 [6 samples], December 2004 [21 samples], March 2005 [7 samples], and May 2007 [39 samples]. The second dataset represents samples collected using low-flow technique and therefore have limited inorganic bias.

## **Technical Approach:**

The statistical evaluation is designed to answer several questions: 1) is there an internal structure (skewed lognormal or gamma distribution) to the dataset that suggest the presence of impacted outliers? 2) Is there a temporal difference between the measure of central tendency over time with the sample datasets? 3) Is there a significant difference between individual datasets?

#### **Basis of the Approach:**

The premise behind defining internal structure to the data is that contaminated sites exhibit biased sampling generally leading to exhibit positively-skewed lognormal or gamma distributions (EPA, 1997), which is caused by the presence of true contamination (elevated values) along with unimpacted samples. Generally, the identification and elimination of these elevated values (outliers) will result in a less skewed lognormal or a normal distribution. Therefore, if outliers can be identified in the Site 21 dataset, the evaluation results can provide a relative basis for targeting true contamination that should be used to evaluate remedial path(s) forward. The statistical distribution and 95% Upper

Confidence Limit (UCL) measure of central tendency of all datasets was performed using the EPA software ProUCL.

Determining the presence/absence of a trend over time in the measures of central tendency of the individual datasets is useful to assess the historical changes and can provide a predictive tool. To determine the appropriate measure of central tendency, the EPA software ProUCL at a 95% confidence level was used. Similar to defining the presence or absence of a trend, determining the presence/absence of a significant difference between the statistical distribution of the datasets is used to assess the elevated lead occurrence over time.

# **Statistical Analyses**

In order to determine whether there was lead contamination at NASP site 21 several statistical analyses were performed. The following provides a short summary and sequence of the tests performed:

- 1. Population modeling of lead at Site 21 was performed versus geochemical modeling due to the lack paired manganese data;
- 2. Censored data treatment Initially the censored data was pre-processed by assuming one half of the detection limit. The ND values change between the five sampling events depending on which lab performed the analysis and the sensitivity of their measuring equipment;
- 3. The statistical distribution of all Site 21 datasets (five events combined) was determined to be positively skewed lognormal utilizing the ProUCL mean;
- 4. The Site 21 dataset was segregated into five separate sampling events, and their statistical distributions were determined;
- 5. Cumulative probability plots were created for each event's raw and log-normal sampling values;
- 6. Outlier analysis was performed and identified outliers removed from each of the data sets outliers are defined as values in a data set that are not true representations of the data set, that is, it is numerically distant from the rest of the data. Outlier were identified by three different tests, the z-test, visual discrimination using the cumulative probability plots and the Tukey outlier test;
- 7. The z-test is applied to discriminate between the sample mean and the population mean to find a significant difference which can be defined as an outlier. At a 95% confidence interval any value greater than 1.96 or less than -1.96 is considered to be different than the population. The visual discrimination of the cumulative probability plots identifies outliers by finding gaps or inflections in the cumulative probability plot relative to other data points in the sample set, and the Tukey outlier test defines outliers as any value above the third quartile or below the first quartile.
- 8. The distribution and 95% UCL mean of each of the Site 21 datasets was determined with and without the outliers present The UCL mean is a test employed to find and define the numerical variability within a particular sample data set and to provide the best measure of central tendency based on the data distribution. For all of this data a 95% confidence interval was applied. A

- confidence interval this stringent defines a value that has a one in 20 chance or 5% probability of falling outside of the margins of that population mean;
- 9. Of the three outlier tests the z-test was the least stringent. If a normal or lognormal distribution was not found by removing outliers identified by the z-test then outliers identified by the other two tests were removed and a residual distribution recalculated.
- 10. Trend analysis was performed using the changes in the 95% UCL mean –the technique utilized was the Mann-Kendall analysis at a confidence level of 80%;
- 11. When enough samples were present in the five datasets, population differential testing was performed using T-tests (where data was normally distributed) and the Kolmogorov-Smirnov test these tests provide a measure of the probability of the lack of a significant difference (or conversely a lack of similarities) of the distributions between data sets a probability level of 90% is used in these analyses to indicate similarity or difference;

### **Results:**

Tables 1, and 2 provide a summary of the statistical and outlier testing.

Table 1. Distributions, 95% UCL mean, and Outlier Identification

		95% UCL Mean	
Sample	Statistical Distribution	(mg/L)	Identified Outliers
June2000 site 21	Lognormal - gamma	38.07	N/A
Feb2003 site 21	Lognormal - gamma	18.55	N/A
Dec2004 site 21	Lognormal - gamma	148.59	N/A
March2005 site 21	Lognormal - gamma	1365.64	N/A
May2007 site 21	Gamma	71.75	N/A
June2000 site 21 outliers removed	Normal	14.05	152, 88.4
Feb2003 site 21 outliers removed	Normal	6.07	22.9
Dec2004 site 21 outliers removed	Lognormal - gamma	82.17	769
March2005 site 21 outliers			
removed	Normal	84.70	1110
May 2007 site 21 outliers removed	Gamma	68.01	416

Table 2.Population Differential Testing

Sample	Statistical Test	Percent probablity that there is a difference
June 2000 vs. Feb 2003	Student's t-test	56.0%
Feb 2003 vs. Dec 2004	Student's t-test	99.6%
Dec 2004 vs. March 2005	Student's t-test	53.0%
March 2005 vs. May 2007	Non-sufficient data	N/A
June 2000 vs. May 2007	Kolmogorov-Smirnov	99.6%
June 2000 vs. Feb 2003 outliers removed	Student's t-test	90.3%
Feb 2003 vs. Dec 2004 outliers removed	Student's t-test	99.8%
Dec 2004 v.s. March 2005 outliers removed	Student's t-test	33.0%
March 2005 vs. May 2007 outliers removed	Non-sufficient data	N/A
June 2000 v.s May 2007 outliers removed	Kolmogorov-Smirnov	99.9%

The following conclusions are made regarding the statistical analyses performed:

- 1 All five of the Site 21 datasets prior to outlier removal are positively skewed lognormal –gamma or gamma distributed; this is suggestive of the presence of high end outliers and indicative of contamination;
- 2 Locations NASP21MW11, NASP21MW18, NASP21MW23, NASP21MW43 were identified as hosting outlier values. NASP21MW11 was sampled 3 out of the 5 events and hosted an outlier value 100% of those times. NASP21MW18 was sampled 2 out of the 5 events and hosted an outlier value 50% of those times. NASP21MW23 and NASP21MW43 were sampled 3 out of the 5 events and hosted an outlier value 33% of those times.
- 3 With outliers removed, three of the five Site 21 datasets exhibit a normal distribution (suggestive of no contamination), two datasets remained as lognormal-gamma or gamma distributed.
- 4 Despite one very low measure of central tendency (February 2003), the 95% UCL mean calculated with outliers removed did not exhibit a trend at an 80% confidence level;
- 5 Population differential analyses indicate that there is a significant difference between the February 2003 and December 2004 event (the February 2003 event is characterized by the lowest relative 95% UCL mean and the lowest sample size);

### **Limitations and Conclusions:**

The primary limitation in the statistical analyses is the assumption that each of the Site 21 sampling events is equally representative of site conditions. As a result, less confidence should be placed in the datasets with smaller numbers of samples. However, the primary evaluator for the differential analysis with the other Pensacola sites is the May 2007 sampling event, which is the most recent and most comprehensive.

Elevated lead has been noted previously in areas near the waterfront, and therefore elevated lead at Site 21 is not to be unexpected. It is recommended that the outlier locations be viewed proactively with respect to potential remedial options, and that a comprehensive sampling be performed for both lead and manganese – this paired data can then be used to confirm the outliers and to provide a geochemical interpretation of the lead occurrence.